

**ATARI**

VOLUME 4  
JUNE 1992

**INTERFACE**

\$2.95 US  
\$3.75 Canada  
\$9.95 Canada w/disk  
\$7.50 Australia

**OCR Comes to the Atari**  
**Programming an 8-bit BBS #2**  
**The Power of Advertising**  
**IBM Blues**  
**SFAN Needs Help!**  
**MIDI in the Midst**





# D & P Computer

P.O. Box 811 - Elyria, Ohio 44036

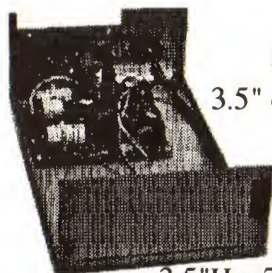
800-535-4290

Tech Info & Fax 216-926-3842  
9AM- 9PM EST CALL FOR CATALOG

**Ordering Info:** Visa, MasterCard or COD. No personal Checks  
No surcharge for credit cards. COD add \$4.00. Ohio add 5.5% tax.  
No cash refunds - Return products for Credit or Replacement only.  
**Shipping Info:** Free shipping on Orders over \$100, in the continental USA. APO & FPO actual freight. We ship UPS..  
**International:** Actual freight.



## D & P HD ENCLOSURES



\$89

3.5" drives only

3.5"H x 7"W x 11"L

Complete with the following features

- \* on/off switch up front
- \* removable power cord
- \* fan
- \* mounting hardware
- \* SCSI cable for 2 drives
- \* Expandable holds 2 drives \*
- \* SCSI thru optional

\$124.95



3.5"H x 15"W x 15"L

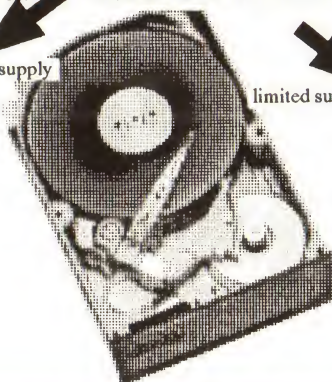
## D & P HD SYSTEMS

Complete assembled unit, using **ICD ADSCSI Plus / ICD ADSCSI** or **Supra** host(w/clock) and software, hard drive, SCSI cable, and fan! *Ready to plug in and use.* All units have a one year warranty. (Syquest & Quantum drives 2 years) Available without clock for \$10 less.

### Complete SHOEBOX Style System

30 MEG (Special Price)- \$329 limited supply

- 52 MEG 17MS- \$464
- 65 MEG 16MS- \$474
- 85 MEG 19MS - \$512
- 105 MEG 17MS - \$554
- 120MEG 15MS - \$584
- 170MEG 15MS - \$744
- 240MEG 15MS - \$884
- 330MEG - \$1341
- 425MEG - \$1404
- 520MEG - \$1474
- 770MEG - \$1525



limited supply

### Complete MONITOR Style System

52 MEG 19MS- \$499

65 MEG- \$514 85MEG- \$554

105 MEG 17MS - \$589

120 MEG 15MS - \$619

170 MEG 15MS - \$779

240 MEG 15MS - \$919

330 MEG - \$1376

425 MEG - \$1439

520 MEG - \$1509 770MEG- \$1560<sup>NEW</sup>

3.5" floppy in second opening- \$90

SYQUEST 44MEG REMOVABLE- \$619

SYQUEST 88MEG REMOVABLE- \$779

## COMPUTERS

1040 STe- \$399

STe SIMMS 1meg each - \$45

MEGA STe 1meg no/HD- \$659

SM147 14" mono monitor - \$199

SC1435 14" color monitor - \$349

PORTFOLIO - \$269

## MODEMS

Supra 2400 baud - \$94 Supra 2400 Plus- \$149

Zoom 2400 - \$74 Zoom 2400V.42bis- \$146

Supra 9600 v32- \$269 Supra 9600 v42- \$349

Zoom 9600 w/V.42bis- \$374.95

## FLOPPY DRIVES

Master 3S - \$129

Master 5S (5.25") - \$199

## Hard Drive Mechanisms

ProDrive LPS 52S- 52Meg 19msec- \$279

Maxtor 65Meg - \$289 Maxtor 85Meg- \$329

ProDrive LPS105S- 105Meg 17Msec- \$369

PD170S- 170Meg 17Msec- \$ 559

ProDrive LPS240S- 240Meg 17Msec- \$699

Maxtor 7120S- 120Meg 15msec- \$399

330Meg - \$1156 425Meg- \$1219

520Meg- \$1289 770Meg- \$1325

SQ555- 44meg removable- \$349 carts- \$77

SQ5110- 88meg removable- \$469 carts- \$125

## MEMORY UPGRADES

Z-Ram - 2.5 or 4 megs - \$85

(Board w/chips 2.5Megs- \$173 4 Megs- \$261)

Z-Ram/2.5- 520 ST- 2.5Meg - \$75

(Board w/chips 2.5Megs- \$163)

Z-Ram/Mega II- 4Megs - \$75

(Board w/chips- \$163)

1 Meg 80ns Chips \$5.50 ea

JRI Memory Board(uses simms)- \$99

SIMMS 1meg each - \$45

## MISC. ITEMS

AdSpeed- \$239

Adspeed STE- \$249

Blitz cable w/software - \$46.95

Cleanup ST - \$25

D.E.K.A. interface- \$95

Drive Master - \$32

Drive extension cable 6 ft - \$13.95

DVT-VCR hd backup - \$69.95

Flashdrive Portable HD case (for portfolio)- \$139

Hand Scanner(w/Touchup) Migraph - \$269

Hand Scanner Golden Image w/TOUCHUP - \$215

HP Deskjet 500 printer - \$469

ICD Advantage Plus w/clock - \$93.77

ICD Advantage (no clock) - \$83.77

50pin SCSI dual drive cable - \$10

ICD Advantage Micro (Mega's) - \$77

Lantech Local Area Network- \$299

Mega Touch Springs - \$9.49

## MISC. ITEMS

Monitor Master - \$32

Monitor Stand (adjustable) - \$14

Monitor Stand w/power switches - \$45.95

Mouse Master - \$26 Mouse mats - \$5

Mouse (Opto-Mech. w/Deluxe paint)- \$45

Mouse (Opto-Mechanical) - \$37

Mouse (Optical)- \$53.95 Mouse (Cordless)- \$80

Mousetick (Gravis)- \$65

Multi Sync Switchbox - \$53.95

Panasonic KPX-1124i 24pin - \$319.95

Panasonic KPX-1123 24pin - \$234.95

PC Speed- \$199

AT Speed(16MHZ version)- \$369

Speed Bridge (Mega or STE)- \$65

Spectre GCR(cart)- \$215

Printer or Modem Cable - \$7

Star NX1001 9pin printer - \$155

Star NX-2420 24pin printer - \$279

ST/time (under rom clock) - \$43

Supercharger W/1Meg - \$419

Synchro II - \$59

TC Power (software for IBM emulators) - \$39.95

Trackball(Kraft)- \$59

Trackball(cordless)- \$88

Turbo16 Accelerator - \$257

Tweety Board - \$27

Vidi ST - \$124.95 Vidi-Chrome ST - \$34.95

Vidi RGB - \$109.95 Vidi Color Kit - \$259.95

Z-Keys (use IBM keyboard) - \$59.95



# MAST

THE MILWAUKEE AREA ST USER GROUP

PROUDLY ANNOUNCES...

## THE SECOND ANNUAL MILWAUKEE ATARIFEST

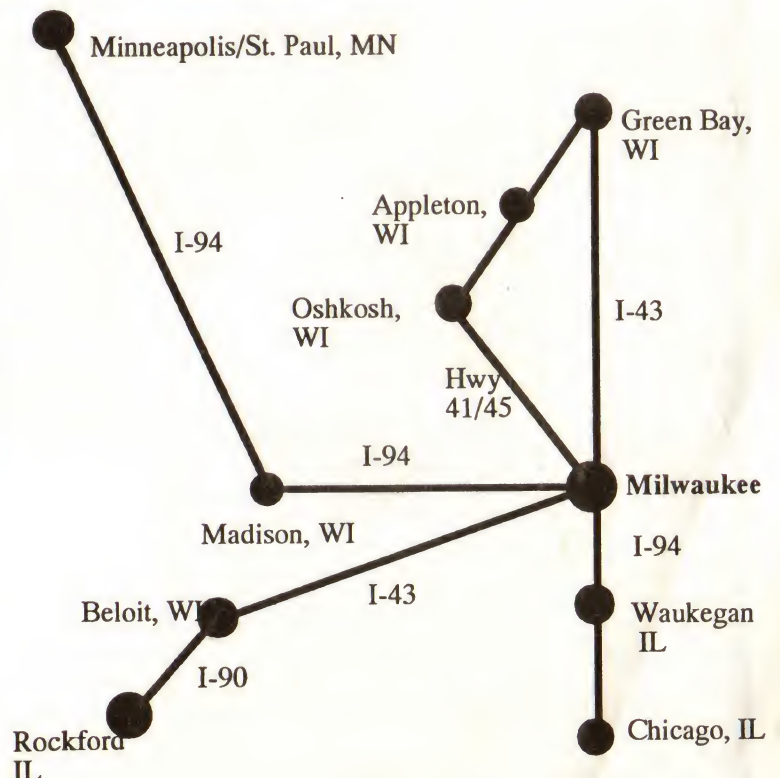
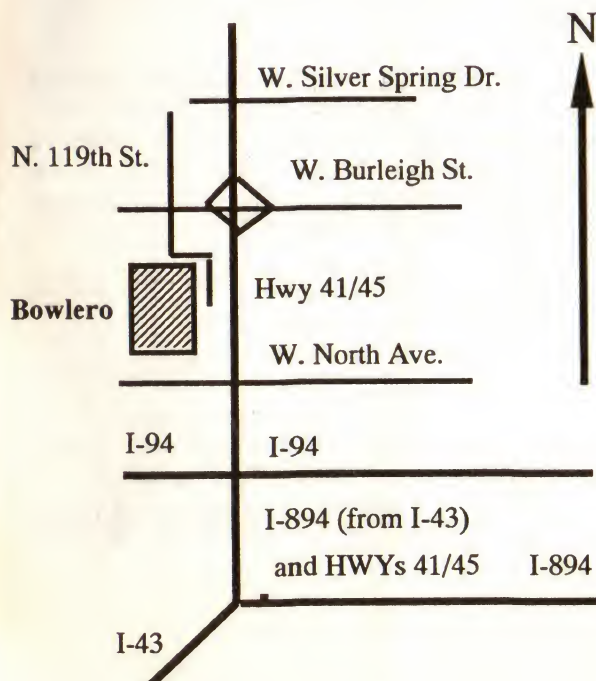
Join us on Sunday June 14, 1992 for the 2nd annual AtariFest in Milwaukee, WI. The show will be held at Bowlero, Red Carpet Lanes, 11737 W. Burleigh Ave. The doors will open at 10:00 A.M. Ticket price: 3.00 dollars. For more information please call (414)463-9662 or leave E-mail for R. Carpentel8 on Genie, R.Laudenbach on Delphi, or call the MAST BBS (414) 461-1730. You also can write to; MAST, P.O. Box 25679, Milwaukee, WI, 53225

The following companies will be at the show...

Gadgets by Small, Codehead Technologies, ISD, ICD, DA Brumleve, Wizworks, Atari Interface Magazine, Softlogik, ABC Solutions, Maxwell CPU, Clear Thinking, Electronic Spinster Graphics, Apple Annie, Compu-Seller West, MegaType, Missionware, MS Designs, Paper Express, SKWare One, and many, many more

How to make it to the show: Regional Map

### Milwaukee Area:







**Publisher**  
Unicorn Publications

**Managing Editor** — Patricia Snyder-Rayl

**Editor** — Bill Rayl

**Contributing Editors**

Paul Alhart, Ron Hunt, Dave Plotkin

**Regular Contributors**

Jay Craswell, Ed Hall, Tim Holt,  
Charles Kelly, Ellen Lentz, Jeff Wells

*Atari Interface Magazine* is a monthly publication that also serves as an official newsletter of several independent Atari user groups and is not affiliated with Atari Corp. in any way. AIM is published by Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108, (313) 973-8825 voice, (313) 973-9137 BBS.

**Subscriptions** — A subscription to AIM is included in membership in any participating club or may be obtained directly from Unicorn Publications. See the subscription form elsewhere in this issue for rates.

**Advertising** — For ad rates or to request a media kit, call Patricia Snyder-Rayl at (313) 973-8825 or write to her at Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108.

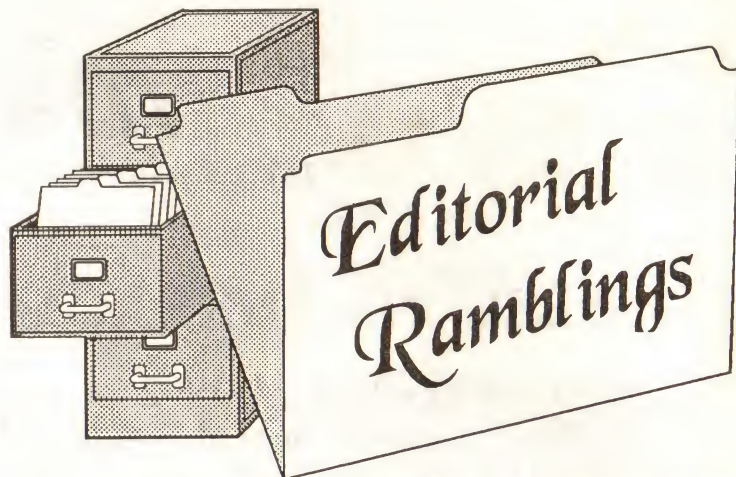
**Submissions** — Articles/submissions for inclusion in *Atari Interface* can be sent on disk to Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108. Submissions can also be uploaded to the Treasure CheST BBS at (313) 973-9137. Standard ASCII text files set block left (ragged right) with no paragraph indents and a blank line between paragraphs are preferred.

**Reprints** — AIM does not knowingly reprint copyrighted material without permission from the source. Non-commercial user group newsletters are granted permission to reprint articles from this magazine as long as credit is given to AIM, the author and club (if applicable).

**Atari Interface is produced with an  
Atari TT/030, HP Laserjet II with  
PacificPage PostScript cartridge and  
Soft-Logik's PageStream.**

Opinions expressed within articles in this magazine are solely the views of the author(s) and do not necessarily represent the opinions of Unicorn Publications, Atari Interface staff or any participating club.

Atari, the Fuji symbol and names of Atari computer products are trademarks of Atari Corp. Other trademarks, where used, are the property of their respective manufacturers.



We've heard recently that *Atari Explorer* is about to be moved "in-house." John Jainschigg has shared with us his thoughts against moving out to Sunnyvale (into what some have called "the pressure cooker"). It is his decision to not accompany *Explorer* to Atari Corp. He will do only one more issue from New York.

As you may remember, John pulled *Explorer* out of the ashes after middle managers at Atari Corp. "fired" Betsy Staples and David Ahl. John kept improving *Explorer*, while STart folded, making *Explorer* the "flagship" of Atari-specific magazines. *Explorer* is the only other Atari-specific magazine next to AIM on bookstore shelves. *Explorer* is also the only glossy left in this market.

We feel Atari execs are making a bad decision by moving *Explorer* to Sunnyvale. It is very possible that *Explorer* won't last long in the political tug-of-war at Atari. If *Explorer* ceases publication, it will be a very sad day for all Atarians. It will be taken as a sign that even a glossy magazine supplemented by Atari itself can't make it any longer in the ever-shrinking Atari computer market.

Some may say *Explorer's* death would help AIM and other magazines. This is not true. Each time an Atari magazine dies, the market convulses; developers decide to move to other platforms; users decide, since they can't find an Atari magazine at a local bookstore anymore, to move to other computers.

We wish both John Jainschigg and *Atari Explorer* a long and prosperous life.

*Bill & Pattie Rayl*



# ATARI INTERFACE

Volume 4

Your Connection to the Atari User Community

June 1992

## FEATURE ARTICLES

- |                                                                                                                                                                                                                       |    |                                                                                                                                                                   |    |                                                                                                                           |    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------|----|
| <b>Right On Target</b><br>David Plotkin, Contributing Editor, talks about file compression software (such as Data Diet) available on several platforms.                                                               | 8  | <b>Pictures to Text—OCR Comes to the Atari</b><br>PAC's Bill Pike reviews Migraph's Optical Character Recognition software.                                       | 33 | <b>TripLink—A BBS and a Whole Lot More</b><br>WMAUG's David Scarpa reviews this Shareware ST BBS program.                 | 50 |
| <b>'030: The New Standard</b><br>George Richardson, of Merlin Group, gives us a lesson on Motorola's 68030 chip family.                                                                                               | 11 | <b>Writing a Bulletin Board on the Atari 8-bit, Part 2</b><br>BaPAUG's James Bastable continues his programming lessons for creating a BBS for the Classic 8-bit. | 38 | <b>CSS Super E-Burner</b><br>ACCESS's Barry Gordon reviews the Super E-PROM Burner for the 8-bit.                         | 51 |
| <b>The Power of Advertising?</b><br>Contributing Author Tim Holt shares his thoughts on statements Apple's John Scully has made about advertising.                                                                    | 16 | <b>SpartaDOS 3.2 and Turbo BASIC XL</b><br>John Kasupski (WNYAUG) tells 8-bit Turbo BASIC fans about recent developments on SpartaDOS compatibility.              | 43 | <b>The Goofy Guru</b><br>This month, the Goofy Guru tells how to fix an 8-bit's disk drive pressure sensitive pad.        | 53 |
| <b>IBM Blues</b><br>Milatari's Michelle Gross talks about her experiences in recommending an Atari versus an IBM system.                                                                                              | 20 | <b>Spelunker from Broderbund</b><br>NWPAC's Dale Wooster reviews an old 8-bit favorite.                                                                           | 44 | <b>Spreadsheet Design</b><br>Michael Bennett shows us how to spice up our spreadsheets to impress the boss and save time! | 54 |
| <b>SFAN Needs Help!</b><br>Mike Kelley, organizer of the Space, Fantasy & Adventure Network, tells how Atarians can help get a Science Fiction and Fantasy-specific cable channel (using Atari computers) on the air. | 22 | <b>A-T-A-R-I</b><br>Contributing Editor Paul Alhart brings us up-to-date and shows how to solve The Challenge!                                                    | 45 | <b>Editorial Ramblings</b>                                                                                                | 2  |
| <b>Handheld TOS? Portfolio by Atari for Atarians</b><br>Don Thomas, Portfolio Manager for Atari Corp., shows how ST owners can use the MS-DOS based Portfolio.                                                        | 25 | <b>Avalon Hill's Third Reich</b><br>ACCT's David Elmore reviews this WWII wargame for the ST.                                                                     | 46 | <b>From the Reader's Viewpoint</b>                                                                                        | 4  |
| <b>MIDI in the Midst</b><br>Kest Carter-Morgan (ASTMUM) continues his look at Hybrid Arts MIDI software and recent Atari shows.                                                                                       | 29 | <b>Realistic Video Poker</b><br>Micro Creation's poker game for the ST is reviewed by Tim Bowles (CASTE).                                                         | 48 | <b>Atari Bulletin Board</b>                                                                                               | 6  |
|                                                                                                                                                                                                                       |    |                                                                                                                                                                   |    | <b>AIM Disks of the Month</b>                                                                                             | 56 |
|                                                                                                                                                                                                                       |    |                                                                                                                                                                   |    | <b>Advertiser's List</b>                                                                                                  | 63 |

### On the Cover

Taking scanned graphics and turning them into text is the purpose behind Migraph's OCR, reviewed on Page 33.



# From The Reader's



# Viewpoint

## Atari Classics Campaign

My name is Roger Meston and I am the 8-bit librarian for the P3-ACE user group. If you have some time, would you address your feelings and concerns about the attempt by Jeff McWilliams to create a separate 8-bit magazine, presumably against your will?

The people in the club are rather divided over the ramifications of this attempt, but we don't even know if you wish to resist or whether you think it's a good move.

I for one feel he is off-base somewhat. I have been a dedicated Atari supporter since 1979, when I bought my first Atari 800. With an 810 disk drive, tape drive and one program, the bill came to around \$1700, which is crazy by today's standards.

But I have never regretted buying it (I had to re-enlist in the US-AF to buy it with my re-up bonus). As I look back on my career, that was the one crucial decision that took me out of hands-on electronics repair and into the wonderful world of computers, space and all out technology stalking.

I've flown multi-gazillion dollar satellite systems, helped develop and deploy the GPS Navigation system, and handled some of the most incredible multi-media stuff you could imagine. I really feel that I owe it all to that one decision to buy an "over-priced video game."

I've said all that to say this—I really feel the remaining 8-biters must, absolutely must, stop this ridiculous self-separation and join with the STers and kick the PCs butt! Ok, maybe not, but at least we should use the darn thing to improve our lives, enjoy using it, learn from it and knock off the stupid crap.

I have been following the 8-bit and ST Fidonet feeds for a while

and some of those people are nuts! Whew, we gotta chill out. Anyway, I feel separating out the 8-bit stuff from the ST stuff will not help anyone.

Your publication is absolute genius, and it is an asset for 8-bit owners not to be segregated out. Delineating the platforms will just drive the wedge deeper between "family" members.

I own both, and I would not trade either machine off for anything. I don't favor one over the other as they both have different strengths. The ST has the big power and the pretty face and the 8-bit has affordability and access to zillions of programs. Regular people can get these machines and learn from them, grow with them, and enjoy it all. Man, I just love 'em!

Ok, I'll take my own advice and chill out (puff, pant, whew). Now where was I? Oh yeah, keep your great magazine just the way it is. You have achieved a fine balance between grass roots and high tech. Keep up the great work.

Thanks for listening.  
Roger Meston

## Dear AIM:

I recently became aware of an effort, headed by Jeffrey McWilliams, to start an 8-bit only magazine. As an avid 8-bitter, I was immediately interested. But what I read in Mr. McWilliams' information kit really disturbed me. His plan is not to just start a new magazine, but to petition AIM to split into two separate magazines.

There are just not enough developers and advertisers to support two separate magazines. Think of how many 8-bit only/16-bit only publications have gone under in just the last year.

Several times Mr. McWilliams implies that this new magazine of his is our last chance to keep the 8-

bit alive. I say it would surely be the beginning of the end of our great support from AIM, and possibly the beginning of the end for AIM as well.

Bill and Pattie, I implore you, do not be persuaded to mess with your find, well-established publication.

Mr. McWilliams, if you really think you can make an 8-bit only publication fly, go for it. I'll buy it. But don't gamble with the future and quality of AIM to try and pull it off. If you have a base of writers, programmers and advertisers, we would all be ahead if you would encourage them to contribute to AIM. One strong publication is always better than two weak ones.

Paul Alhart  
Lompoc, CA

*Paul and Roger, having only just received a copy of the actual kit ourselves, we can see why we've gotten a number of responses from people who are against the Atari Classics idea as it is being approached.*

*Here's basically where we stand on all this. We are very supportive of the 8-bit market and any efforts to help that market survive. Jeff McWilliams, Ben Poehland and others behind the Atari Classics magazine campaign believe the 8-bit market needs some rallying place for developers and users. We agree wholeheartedly with that.*

*They believe this rallying place must be a national, professionally produced, 8-bit only magazine. While we don't agree 100% with that assessment, we would definitely give our support to such a publication if enough 8-bit owners out there also showed their support by indicating their willingness to subscribe. The recent write-in campaign run by Jeff McWilliams and Ben Poehland was designed to gauge how much support is really out there for their proposal.*

*Recent reports from Ben Poehland indicate they received over 500*



responses from people stating they would be willing to pay \$25/yr for such a magazine. This 500 "target" was arbitrarily set by the people behind Atari Classics. While this might be a feasible number for a small, US-only magazine, a fairly large number of those people responding were outside the US.

When Jeff McWilliams says in the kit that it would be "a little more" than \$25 for non-US subscribers, he's being a bit misleading. It could actually cost close to twice that amount, since Printed Matter mailing rates for a magazine like AIM comes close to \$2 per issue to some countries.

A magazine "like Atari Interface" would not be feasible at those kinds of numbers, even if it was only US-based. At least a couple supporters of the campaign have indicated to us they will only settle for a magazine that is nationally distributed to bookstores, like AIM. That's just not a feasible reality.

Regardless of what the kit from Jeff McWilliams indicates, Atari Interface is most definitely not going to "split off what little 8-bit coverage it now offers" to create Atari Classics. In fact, they did get it right in the kit when they said AIM would "continue serving the 8-bit community as long as 8-bit users express interest."

We have heard a lot of other people's opinions on this matter. Some are very supportive of the separate publication idea. Others want us to persuade Jeff McWilliams and his helpers to focus their support into Atari Interface. We have not attempted to persuade Mr. McWilliams (or anyone else) to start, continue or abandon this effort. We also have nothing whatsoever to do with the form or substance of the campaign. We only indicated our support for the broad ideas on which the campaign was based.

If, however, the Atari Classics people think Atari Interface is going to become an ST-only publication while they put together Atari Classics and we publish that magazine for them, they're wasting a lot of everyone's time.

We believe, as AIM illustrates, that it is better to have more interaction between ST and 8-bit owners, not less. We believe it is better to treat ST and 8-bit owners as equals rather than act as if neither exists in the same reality. We will not turn our backs on that belief just because the Atari Classics people think otherwise.

If the 8-bit community decides it's in their self interest to have an 8-bit only magazine and the Atari Classics people can get enough subscribers to pay for such a magazine, then we will do what we can to help make the publication a reality. But we will not sacrifice Atari Interface and abandon its 8-bit supporters in the process.

You can be sure we will continue to support the Atari 8-bit market in AIM as long as people like you support us. We currently have more 8-bit article submissions coming in each month than ever before and our 8-bit Disk of the Month is doing very well.

Bill & Pattie Rayl

### Why Switch?

As summer approaches, and Atari Corp. has once again failed with many of their promises, I hear many of my friends talking about switching to IBM or some other computer...

IBM, with all its glitz and glamour, seems to be the computer of the future...but is it really what anyone really needs?

Definitely not!!!

So many people get caught up in this keeping up with Jones's syndrome. Before you think about switching computers due to Atari's lack of customer support, ask yourself a few simple questions. You may be very surprised at your answers.

What are my needs for a computer? Most people will choose either word processing or playing games. Can an IBM do word processing better than your Atari? Certainly not! Can it play games better? Nope. Can your Atari do

these things satisfactorily for you? Yes, but.... but what? But the IBM has so many new things coming out for it all the time...

Ah HA!!! Now we have gotten down to the real bottom line as to why you might consider switching computers...the IBM has more new stuff coming out all the time. If it wasn't for this fallback, you would be perfectly happy with your Atari, right?

Now is the chance for you to make a difference and make Atari know how you feel. Most all of us are in sincere agreement that we love our Atari's and would never switch if Atari would just start listening to our wishes.

The Solution: Write to Atari Corp., Attention Jack Tramiel, Sam Tramiel and Bob Brodie. Send each of these three a copy of your letter. Tell them in no uncertain terms that if they don't wish to lose their loyal Atarian following, they need to bolster their support, in both hardware and software, for both the 8-bit and ST line of computers. Tell them we are tired of waiting, and we want action now!!!

If each and every Atarian in the US would take the time to write to these guys and tell them this, maybe we would start seeing more support here in the US instead of watching it all going overseas. The time to act is now, and if you don't do it, you are not a true Atarian. do it! We can make a difference!

Write: Atari Corp., 1196 Borregas Ave., Sunnyvale, CA 94089-1302

Jason  
Vancouver, WA

### MegaSTE System For Sale

**MegaSTE 4/50 (4 megs, 50 meg internal hard drive)**

**TOS 2.02 with NewDesktop**

**MC68881 Math Coprocessor!**

**16MHz CPU, mouse, external keyboard**

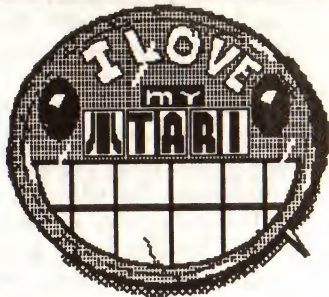
**Atari SM124 monochrome monitor**

Best mail order price we've seen for similar system is \$1400. Asking \$1,000 firm. Price includes shipping to anywhere in continental US. MasterCard/Visa, certified check or money order accepted. Personal or business checks welcome, but please allow 10 days to clear.

**Bonus:** System ships with the entire Atari Interface ST Disk of the Month collection on the hard drive! Approximately 20 megabytes of self-extracting archives, close to 80 megs when extracted!!

Please contact Pattie Rayl at (313) 973-8825 or at Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108.





# ATARI BULLETIN BOARD

## Atari Corp. News

The major news this month was Atari's losing its \$160 million antitrust case against Nintendo. Atari had filed the suit alleging that Nintendo's licensing agreements with video-game publishers constituted unreasonable restraint of trade. Atari claimed Nintendo had used its monopoly power to force independent software companies to agree to keep hit games from competitors like Atari, and to provide the games exclusively to Nintendo.

The jury found that Nintendo did not have any intent to monopolize the U.S. home video-game market. However, the jury found that Nintendo did have monopoly market power. The nine-member jury, following an 11-week trial, found that Nintendo's video game licensing program had not caused Atari any damages.

The jury was unable to reach verdicts on the question of whether Nintendo's licensing agreement was an unreasonable restraint of trade, or whether this program was the means by which Nintendo acquired monopoly power.

"We are disappointed the jury did not understand the negative impacts Nintendo's exclusive contracts had on competition because of Nintendo's power over its suppliers and customers," said William Jaeger, an attorney representing Atari. "The consumer also loses from this result because the antitrust laws have worked very effectively to maintain a strong competitive environment with lower prices and better choices for consumers," Jaeger said. "This decision will seriously weaken those vital laws."

The judge decided Atari also has to pay Nintendo's legal fees, something in the "six or seven figure range," according to Nintendo. Atari's subsequent appeal was denied.

## MetaDOS

Atari's Bill Rehbock has announced that the current version of MetaDOS is available for developers to distribute free with their products. MetaDOS comes with a driver for the CDAR-504 and a driver for any Sony CDU-541-compliant drive connected to a TT. This includes the popular Chinon

CDX-431, the NEC CDR-36, 73, and 83 as well as the Macintosh CD-ROM drive.

Anyone interested in connecting a CD-ROM drive to an older machine should contact ICD or BMS.

## Developer News

CodeHead Technologies, under their Working Title US subsidiary, has released Calligrapher Professional and Calligrapher Gold.

Calligrapher is a feature-packed document processor combining some of the best capabilities of word processors and DTP packages.

The CodeHeads are offering a special trade-in discount to owners of other Atari word processors—just send in your master disk for any one of these programs:

|              |                |
|--------------|----------------|
| Word Writer  | Microsoft Word |
| Word Perfect | 1st Word Plus  |
| WordUp       | Signum         |
| Wordflair    | That's Write   |
| Regent Word  | Write On       |

and you'll get a \$35 discount off Calligrapher's normal price. (You'd get Calligrapher Professional for \$140 or Calligrapher Gold for \$215.)

PostScript output support is included as a standard feature of either version! Calligrapher Gold adds such features as the ability to place text along a user defined path (FlexText), a grammar checker, thesaurus and barcode generator.

Calligrapher Professional and Calligrapher Gold each include ten outline fonts.

If that's not enough, there's an entire library of 60 high-quality outline fonts available from CodeHead Technologies. Font disks are \$34.95 and each disk contains one main typeface (e.g. Garamond, Bold, Italic and Bold Italic).

Calligrapher uses G+Plus (like GDOS) so you are not required to purchase any of these fonts. You can use any GDOS-compatible font with Calligrapher.

For more information, contact CodeHead Technologies, P.O. Box 74090, Los Angeles, CA 90004, Ph: (213) 386-5735, FAX: (213) 386-5789, BBS: (213) 461-2095.

## ISAC Board Sale

Dover Research is now selling the ISAC graphics card for \$299.95! If you use an Atari Mega ST2 or 4 for desktop publishing or CAD, you will *love* this card. ISAC delivers 1024x768 resolution with 16 on-screen colors.

Dover's Jay Craswell can't promise how long this will last, so get your order in *now*. This is a direct sales deal only from Dover Research. Call (612) 492-3913.

## Upgrades Easy as ABC

ABC Solutions is now offering the K-Spread 4 spreadsheet in North America. KSpread 4 offers extensive spreadsheet and presentation capabilities with GDOS output. The Surround Rectangles function enables the user to surround cells or blocks of cells with boxes. By using these boxes, tables and forms can be designed, and shading can be used for added impact. Text can be added in a variety of fonts, styles and sizes. You can use this capability to design self-calculating forms, such as invoices or quotations.

In addition to the presentation features, KSpread 4 includes over 50 convert functions and more than 20 time & date functions in addition to extensive database, financial, logical, statistical and string functions. Date calculations, sorting, user defined functions and extensive macros (generated by either learning or programming) are among the features of this package. Lotus WKS and WK1 files can be loaded and saved directly, without the need for a conversion program, as can DIF and ASCII files. K-Spread 4 costs \$169 US (\$199 CAN).

Also available is K-Spread 4 Lite, with all the features listed above except Macros and the GDOS features. It is fully upgradable to the full K-Spread 4 program. K-Spread 4 Lite sells for \$89 US (\$99 CAN).

Owners of A-Calc, A-Calc Prime or any version of K-Spread may upgrade to K-Spread 4 by sending in your master disk and a check or money order for \$79 US (\$89 CAN). To order, send check or money order to ABC Solutions, 4040 Creditview Road, Unit 11-151, Mississauga, Ontario L5C 3Y8 or call (416) 824-8484.





## PageStream Offer

Soft-Logik Publishing has announced a special PageStream upgrade offer for owners of other Atari DTP packages. Owners of any other Atari desktop publisher can upgrade to PageStream 2 for only \$120. This offer expires on August 31, 1992.

To take advantage of this offer, send the following to Soft-Logik:

- Atari DTP manual title page (any Atari DTP program, but no photocopies)
- Your original program disk OR a photocopy of a disk or registration card showing your registration number
- Your name, address, telephone number
- The upgrade fee
- \$5 for shipping (\$15 outside of USA and Canada)

Upgrading from Publishing Partner is \$100, and upgrading from any version of PageStream is \$75. PageStream owners can easily upgrade over the phone. PageStream 2 retails for \$299.95. Contact Soft-Logik Publishing at 11131 F South Towne Square, St. Louis, MO 63123, (800) 829-8608 or (314) 894-8608, FAX: (314) 894-3280.

## Portfolio News

Atari has released a new software application for the Portfolio handheld computer. Hyperlist is a unique filing system which revolutionizes the way data may be organized in the Portfolio. Often described as an "outliner" or "database," Hyperlist provides the opportunity to create extensive lists, then attach "child" lists to each item in the "parent" list. On paper, the data flow resembles an organizational or flow chart.

"This new system on the Portfolio opens many doors of opportunity", states Donald A. Thomas, Jr., Portfolio Marketing Manager at Atari Computer Corp. "The software is easy to use, powerful and flexible all at the same time." Specific target markets include education, sales, medicine, law and just general purpose.

Hyperlist retails for only \$49.95. For more information on the Portfolio and its applications, contact Don Thomas, Portfolio Marketing Manager, 1196 Borregas Ave., Sunnyvale, CA 94088, (408) 745-2000.

An on-line newsletter called Palm To Palm is available from Perfection Applied for those new to palmtop computing or those that have a palmtop future. It's available in the PALMTOP and APORTFOLIO Forums on CompuServe.

For palmtops users that want tips, tricks and help, Perfection Applied offers Take It With You, a bi-monthly newsletter for palmtop computing. Subscriptions to Take It With You are \$18 a year. Send check, money order or cashier's check to Perfection Applied, 454 West 1010 North, Orem, UT 84057, ATTN: Palmtop newsletter.

People looking for a carrying case for their Portfolio may wish to check out Ultrasoft's deluxe case selling for \$29.99. The case is described in their catalog as "black polyurethane outer shell, water-proof, reinforced wrist strap, nylon zippers, size 8.8 by 5.8 by 2.5." The main section holds the Port and spare batteries. An auxiliary compartment has document pouches, RAM-card pockets, and pen and business card holders. A pocket in the auxiliary section adds space for a parallel interface and cable. To order, call (514) 487-9293 or write Ultrasoft at One Transborder Drive, PO Box 247, Champlain, NY 12919.

## Upcoming Atari Shows

The 1992 Blue Ridge AtariFest will be held at the Westgate Shopping Center in Asheville, NC on July 18th from 10am to 6pm. Take any major highway into Asheville (US-19/23, US-26 or I-40) to the I-240 loop, then take the

"Westgate/Hilton Inn Drive exit" into the Westgate Shopping Center parking lot. For more information, contact Van Estes (BRACE Pres.) at (704) 685-8358 or Sheldon Winick (Computer Studio) at (704) 251-0201.

The fourth annual MIST Atarifest will be held on Saturday, July 25. The show runs from 10am to 5pm and will be held at the Castleway Conference Center at 6385 Castleplace Drive, Indianapolis, IN. This air-conditioned location on the north side of Indianapolis has ample parking and is close to several major highways, many fine restaurants and hotels, and the largest mall in Indianapolis.

Public admission is \$3 and includes a raffle ticket to win one of the many hardware and software items donated by attending vendors and developers. Vendors may purchase booths (8x8) at \$50 each. User groups may purchase booths for \$10 each. Only a limited number of user group booths are available. For more information, contact Dan Ward via GENie at (D.WARD10) or give him a call at (317) 254-0031.

## Weekend Shows

Several Connecticut Atari user groups are joining forces to stage a two-day show later this year in Hartford, CT. The event is scheduled for August 15 and 16 at the Sheraton Hotel at Bradley International Airport, Windsor Locks, CT.

The show showcases the latest Atari products and services and includes seminars on desktop publishing and video production, hands-on instruction from manufacturers and software developers, MIDI demonstrations, giveaways, 8-bit support, a swap room and much more.

For more information about Connecticut AtariFest '92, contact Brian Gockley at 18 Elmwood Avenue, Bridgeport, CT 06605, (203) 332-1721 or Doug Finch at (203) 637-1034.

The Washington Area Atari Computer Enthusiasts are currently planning WAACE AtariFest '92 for October 10th and 11th at the Sheraton Reston Hotel in Reston, Virginia.

When you're looking for late-breaking Atari news, honest product reviews and articles written by users just like yourself, look no further than *Atari Interface*.

Unique in the market, *Atari Interface* also serves as an official newsletter for 100+ user groups in the US, Canada and the UK!

Also, check out our ST/Mega, Mac/Spectre and Atari 8-bit Disks of the Month for the very best PD and Shareware software available each month!



Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State/Country: \_\_\_\_\_ ZIP: \_\_\_\_\_  
Send me: ☐ 1 year (12 issues) ☐ 2 years (24 issues)  
Rates: ☐ US 3rd Class - \$18 for 1 yr., \$32 for 2 yrs. ☐ US 1st Class - \$36 for 1 yr., \$50 for 2 yrs. ☐ Canadian - \$42 for 1 yr., \$70 for 2 yrs. ☐ Foreign - \$48 for 1 yr., \$80 for 2 yrs.  
Circle me for FREE TRIAL ISSUE  
Sign me up for your Disk(s) of the Month!  
☐ ST/Mega (12 DS disks) - \$50 additional  
☐ Mac/Spectre (12 DS disks) - \$50 add. Format: Mac Spectre  
☐ Atari Classic 8-bit (12 SS/SD floppies) - \$50 additional  
☐ I wish to pay by VISA/MasterCard!  
Card Number: \_\_\_\_\_ Exp. Date: \_\_\_\_\_  
Signature: \_\_\_\_\_

\$2 processing fee on orders under \$100, \$3 on orders over \$100

Make checks or money orders payable in US funds.

Return this form to Unicorn Publications,  
3487 Braeburn Circle, Ann Arbor, MI 48108.





# Right on Target



**David Plotkin**  
Contributing Editor

I've been reading about Double Click Software's newest product, Data Diet. What it does, essentially, is automatically compress your data when it is saved to disk, and decompress it automatically when that data is loaded back in from disk. This can result in a significant savings in disk space, enabling you to save much more information on a hard drive (or floppy).

Disk compressors have been big business in the PC world, although, curiously, they have yet to make a big impact on Mac users. My suspicion is that, even though PC hard drives are cheaper than just about any other kind, replacing a PC hard drive is also a bigger pain than replacing a hard drive on any other kind of machine. This is primarily because most PC hard drives are internal, and changing drives thus requires opening up the machine and, occasionally, replacing an interface card or even the BIOS. Not easy or cheap.

Even though replacing an Atari hard drive is simply a matter of plugging a new one into the right port, I am still surprised it took so long for someone to come up with a disk compressor. Atari hard drives have been historically expensive. This is primarily due to the fact that they require a special adapter to turn SCSI signals into ACSI signals—and SCSI hard drive are among the most expensive kind.

At any rate, we now have a disk compressor, and by all reports, it is very solid—that is, no corrupted data. This is *very* important—it doesn't matter how fast or efficient a disk compressor is; if it fouls up the data, there can be hell to pay.

I remember using a PC disk compressor on my laptop computer. It worked fine until one day—*poof*—the entire hard drive was corrupted. I was able to restore everything from backup except for about two hours of work in

WordPerfect. Needless to say, I never reinstalled that disk compressor (or any other one) on the laptop. Once burned, forever shy.

Disk compression can reduce the size of files by quite a bit. Exactly how much reduction occurs depends a great deal on the file, as we shall see shortly. However, on average, a set of computer files can be compressed to about 50% of their "normal" size. Program files reduce very little, while many database files can be reduced to less than 10% of their original size! For example, a dBASE IV file that was well over two megabytes compressed to 110K—a 95% reduction.

In order to understand how disk compression works, you need to understand that a data file on the disk is nothing more than a string of characters and numbers. In the case of a program file, these characters and numbers tend to have very little repetition, while data files for word processors and databases and spreadsheets tend to have quite a bit of repetition. The ability of a disk compressor to reduce file size depends directly on how much repetition of character strings there are in a file.

The most often used compression scheme is named for two Israeli mathematicians, Lempel and Ziv (and hence called Lempel-Ziv compression). Essentially, their scheme scans through the file to be compressed and identifies repeating strings of characters. Each string of characters is converted into a "token"—a smaller string (often just one or two bytes long) that represents the longer string in the file. Everywhere the long string occurs, it is replaced in the file with the token. A table is constructed that identifies the correspondence between the tokens and the repeating strings, and this table becomes part of the file.

This, by the way, is one of the advantages of Lempel-Ziv: it is self con-





tained, and has all the information necessary to extract itself.

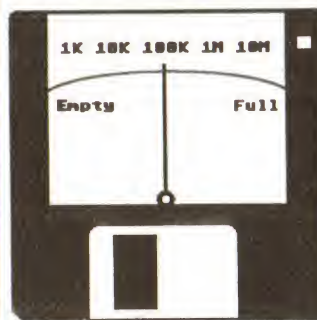
Of course, you would expect the act of compressing and decompressing a file would slow computer performance. It can, and often does slow the ST somewhat, but on machines with faster processors (such as the TT) you can actually get better performance with compressed files!

This is because there is a tradeoff in dealing with compressed files. The CPU has to do the work to compress or decompress the file—and that takes time. However, there is less data to move to and from the hard drive. Since disk access is quite a bit slower than the CPU, a significant reduction in file size can actually cause an overall increase in performance, especially when the computer is equipped with a fast CPU. Neat, huh?

Some PC compression packages even have coprocessor cards that speed up the compression and decompression steps further, but their increase simply isn't worth the loss of a "slot" in the PC.

At any rate, if you are running short on hard drive space, Data Diet from Double Click is certainly worth considering. It is virtually invisible to you—doing all its work in the background. There is even a set of utilities that tell you how much space you are saving. Even better, the setup utilities can compress the files you already have on your disk, so even that part is relatively painless.

## Don't buy another hard disk!



**Data Diet**  
is all you'll  
ever need.

Use files the same as always, but have them occupy ***much*** less disk space! The programs you use don't know Data Diet is trimming away the fat, but

you'll notice the difference right away!

Includes Data Diet, DC Squish and Data Diet Tools. A complete system to save you megabytes of storage space.

Any file over 1K can be dietized. Two compression types built-in: type A is *fast*, type B is 10%-20% better compression. Count calories saved on drives. Batch dietize all files for fast setup. Save 65%-80% on word processing documents alone!

**\$74.95**



**Double  
Click  
Software**

PO BOX 741206  
Houston TX 77274-1206

Phone: (713)977-6520 (noon-6pm)  
BBS: (713)944-0108

Include shipping and handling (\$3 US, \$5 outside US) TX residents add 8.25% tax.

COD, VISA/MC welcome  
Outside US: no personal checks

# WARP 9

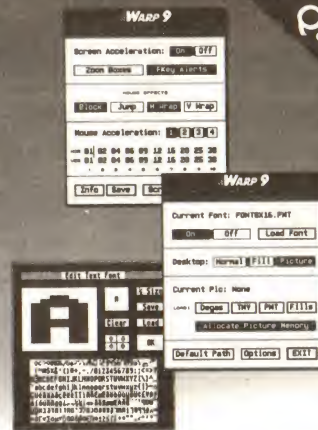
## The Software Accelerator

Formerly  
Quick ST!

Boot up once with Warp 9, and you'll never want to be without it again. Warp 9 increases the speed of screen output dramatically - windows snap open, graphics appear instantly, and text *flies* onto the screen.

How is this possible? Most GEM programs display graphics and text by calling standard routines built into TOS. Warp 9 intercepts and handles these calls, with optimized assembly language code that is *much* faster than the built-in routines. Graphics and text still look the same, but appear with astonishing speed!

Warp 9 also includes a unique configurable mouse accelerator, desktop pictures, custom screen fonts and fills, and the Warp 9 Customizer, a program that lets you create your own fonts and fill patterns. And best of all, Warp 9 is compatible with all the programs you run. Ask your local Atari dealer for your copy of Warp 9 today!



**CodeHead**  
TECHNOLOGIES

P.O. Box 74090  
LA, CA 90004  
Tel 213-386-5735  
Fax 213-386-5789



**Computer Studio declares WAR on Ugly Hard Drives!**

## introducing... the computer studio *file*

Case alone (as described at right) ... **'119."**

Case with ICD AdSCSI installed (complete with DMA cable and software - ready for installation of your hard drives) .....

**'239."**

### Complete Systems:

50 Mb Hard Drive System (3.5") ..... **'479"**  
 105 Mb Hard Drive System (3.5") ..... **'599"**  
 Syquest 44 Mb Removable System .. **'645."**  
 Syquest 44 Mb Removable with any of the above drives, add ..... **'400."**

with case, cables and ICD AdSCSI

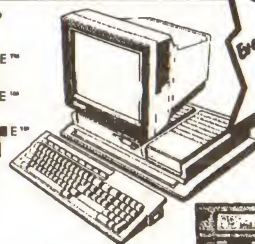
*Other sizes also available. Call for pricing.*

Case measures 6.9" x 6.0" x 10.5" and is color matched to Atari's TT030 (light beige). Assembly includes case with 50W power supply, power switch, LED power light, fan, removable power cord, two half height 5.25" drive bays, internal SCSI cable with two 50 pin drive connectors and two external 50 pin Centronics connectors.

**ATARI<sup>®</sup>**  
**520ST<sup>™</sup>**  
**1040ST<sup>™</sup>**  
**MEGA<sup>™</sup>**  
**TT030<sup>™</sup>**

PTC1426  
 TTM195  
 SC1224  
 SC1435  
 SM147

**ST<sup>™</sup> SIMMs**  
 1meg x 8  
**'40 each**



*Everything in stock for immediate delivery!*

*Portfolio*  
**LYNX**  
 SLM605  
 Megafile 44

**WE WILL MEET OR BEAT ANY LEGITIMATE ADVERTISED PRICE IN THIS MAGAZINE FOR THE ATARI BRAND PRODUCTS WE SELL!**

**Laser Toner  
 Specials**

**SLM804 Toner '47."**  
**SLM605 Toner '29."**

**Panasonic**  
Office Automation

**FX-RS505U**

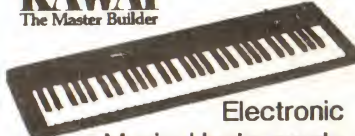
**Flatbed Scanner**

*complete with Atari Interface,  
 Cable and ScanSoft Software*

**'1299.00**

*Store Demo*

**KAWAI**  
The Master Builder



Electronic  
 Musical Instruments

*We're MIDI Specialists!*

MS710 Keyboard ..... **'149."**  
 PH50 Pop Keyboard ..... **'329."**  
 KC10 Spectra Synth ..... **'479."**  
 K1-II Synthesizer ..... **'699."**  
 K4 Synthesizer ..... **'999."**  
 R-50E Drum Machine ... **'349."**

### Software Specials

#### Art and Design

CyberPaint 39.95  
 Cyber Studio/CAD 3D 47.95  
 Didot Line Art 149.95  
 Prism-Paint 63.95  
 Retouche 149.95

#### Entertainment

Blackjack Plus 3 32.95  
 Chess Simulator 33.95  
 F19 Stealth Fighter 43.95  
 Falcon 33.95  
 Knightmare 36.95  
 Knights of the Sky 38.95  
 Oh No More Lemmings 34.95  
 Populous II 43.95  
 Proflight 47.95  
 Sim City 33.95  
 Strip Poker \* 18.95  
 Strip Poker II \* 28.95  
 Tip Off 33.95

\* CLOSEOUT ITEMS - QUANTITIES LIMITED

### Music & MIDI

Band-In-A-Box 69.95  
 Cubase 3.0 **NEW!** 399.95

#### Productivity

Calamus Font Editor 59.95  
 Calamus Outline 159.95  
 Cardfile 3 26.95  
 Construction Estimator 34.95  
 Critical Path 34.95  
 DC Desktop 26.95  
 Flash 1.6 19.95  
 GFA Basic 3.5 99.95  
 GramSlam 24.95  
 Hard Disk Sentry 34.95  
 LDW Power 109.95  
 Migraph OCR 239.95  
 Phasar 4.0 54.95  
 Quick Tools vol 1 18.95  
 STalker 3 34.95  
 Stealth 27.95  
 Wordfair I/FSM GDOS 139.95

*If we haven't listed what you want, please call.*

### HOUSTON INSTRUMENT

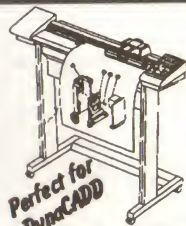
#### DMP-61DL Pen Plotter

Architectural D-size (24" x 36")

8-pen plotter complete with stand & Atari Interface

**Store Demo '2895.00**

*Also available: DMP- 161 New Model ... '3495.00*



*Perfect for DynaCADD*

Authorized Atari Sales, Service, Training and Support. Authorized Kawai Electronic Musical Instrument Dealer. Specialists in Desktop Publishing, CADD and MIDI system solutions, as well as all your other personal and business computer needs. Sale prices in this ad are good through June 30, 1992 (Limited to available stock for closeout and used products).

**IADA**

**MEMBER DEALER**

Independent Atari Dealers' Association

**ATARI<sup>®</sup>**  
 Power Without the Price<sup>™</sup>

**Computer Studio**

Westgate Shopping Center

40 Westgate Parkway - Suite D • Asheville, NC 28806

Phone: (704)  
 251-0201

Toll-Free Order Line

**1-800**

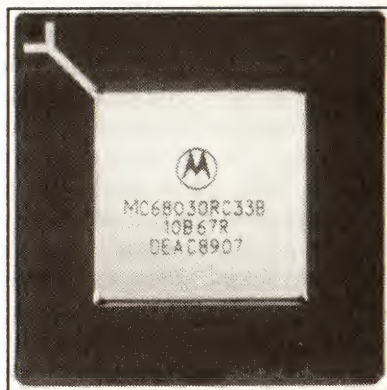
**253-0201**



# '030: The New Standard

George  
Richardson

The new standard in Motorola 68000-based family of personal computers seems to have become the 68030. Al-



most all of Apple's current line of machines use at least a 68030 processor and Commodore's Amiga line seems to be moving in the same direction. With the Atari Falcon '030 machine that has been reported at various shows, and the already released TT030, it would seem the Atari line will also come to use this processor as its standard. Let's take a close look at the 68030 and the capabilities it brings to the world of Atari computers.

The 68030 processor, as it was originally designed, incorporated all of the techniques Motorola's engineers could think of to add more power to a microprocessor. Like its predecessor, the 68020, it has both a 32-bit addressing range and a 32-bit wide data path. It improved on the single cache in the 68020 by including separate caches for data and instructions.

It also has the ability to access memory in a number of ways, each of which makes a good compromise between speed of access and control of the memory, allowing the 68030 system designer to get the best speed where it is most needed.



## Memory Interfaces

The 68030 was given an interface for standard 8-, 16- and 32-bit asynchronous memory accesses, to enable it to be interfaced to all standard memory and peripheral devices. The "asynchronous" refers to the fact that, like the previous members of the 68000 family, the 68030 can address memory that is not run on the same clock signal that it is. The 68030 will wait for the memory or device to signal that it is ready to send or receive information.

This is the slowest memory access method on the 68030, since it requires that the processor determine the memory size and address and set its control signals accordingly. In the Atari TT030, the so-called "ST RAM" is accessed this way.

The 68030 also has a special interface for faster memory accesses that are synchronized to the 68030 clock. This is called, strangely enough, the synchronous interface. This allows faster memory access than the asynchronous method, because less internal circuitry is involved. This interface requires 32-bit wide memory to work, since Motorola had to bypass the part of the circuitry that handles different data path sizes in order to increase the speed for these accesses.

The last external memory interface is a variation on the synchronous interface, and it is probably the one most people who have heard anything about the 68030 know about. It's the burst mode interface. This interface allows the system to fetch four 32-bit words from memory in less time than it takes to get two words by the asynchronous method, or three by the synchronous method, if the memory system is fast enough.

It does this by only sending out the first, or what's called the "opening," address of the burst mode access. The memory itself is then responsible for automatically incrementing the address and informing the 68030 that it's ready to send or receive data. Since the 68030 only sends out the starting address, the address circuitry is only used on the starting address of the burst. The next three accesses don't use it, eliminating any additional delay for them. This is what "Fast RAM" or "TT RAM" on the TT030 and 68030 SST board use to get their speed.

One interface that was present on the 68000 chip is missing from the 68030 (and the earlier 68020). It was referred to as the 6800 peripheral interface. This interface was used to allow the 68000 to easily interface to chips designed to run off of the phase 2 clock of the old 6800 microprocessor line. This allowed 68000 designs to make use of the plentiful 6800 family interface chips, since, at the time of its release, there were few chips capable of running at the 68000's 8MHz clock frequency.

In the Atari ST computers, the two 6850 ACIA chips used for the keyboard and MIDI interfaces use the 6800 peripheral interface of the 68000 chip. External circuitry is used to duplicate this interface for the 68030 chip in the TT and SST board.

## Cache

Besides the external memory interfaces, the 68030 also incorporates control logic and 512 bytes of static data RAM for two internal memories—the data and instruction caches. These memories are used to store recently used data and instructions and supply them to the processor faster than external memory can.

Whenever the 68030 reads data from or writes data to an external memory location, it simultaneously stores that address into what is called an address tag memory in the data cache and writes the same data that comes from or goes into the external memory into the cache data location referred to by the address tag. The ability to put an address into the data cache during a write operation is selectable by a control register.

When a read or write of external memory is required, the cache system checks to see if there are any tag locations that match the address of the external memory being addressed. If there are, it reads the data in the cache location associated with the tag rather than waiting the extra time required for the external memory to supply the data.

On a data write, if the address is already in the cache, the system writes the data to both the cache and the external memory. The instruction cache only caches instructions read from memory. All writes to memory are considered data.

The cache in the 68030 can supply data to the CPU in one clock cycle, or less in many cases. Besides that, it is possible for the 68030 to fetch both data and instruction codes at the same time by fetching one from the cache and the other from external memory.

All of the previously mentioned methods of accessing external memory can feed information into the cache, but the burst mode method is set up only to feed memory into the cache. If the cache is not turned on, then the burst mode can't be used either. There are a number of methods of controlling the cache system. The two caches can be individually turned on and off by internal register bits.

## Controlling Cache Usage

There are also some external signals that can be used to control and monitor the functioning of the internal cache system. The most important of these is the cache inhibit line, which external hardware (the system the 68030 is connected to) must use to prevent the 68030 from caching any memory locations that it should not.

On the ST, this line must be used to prevent the caching of any hardware registers like the serial port, parallel port or DMA hardware registers. If this isn't done, then the 68030 may end up fetching data from the cache rather than from, for example, the hard drive, resulting in a loaded file or program that consists of the same data repeated over and over. Considering most programs seem to be made up of more than one instruction, this does not turn out to be a



good thing, so this line must be asserted during hardware accesses to prevent this.

Unfortunately, there is a small bug in the 68030 cache system that allows the 68030 to ignore the cache inhibit line during word wide (16-bit) writes to memory. Once the cache entry is made this way, the system will continue to use it regardless of the state of the cache inhibit line during an access. Fortunately, on the ST the hardware registers are all 8-bits wide, so this bug doesn't ordinarily affect the ST. At least it should not. It is possible to make a word wide write to the hardware, though, so this could cause a problem.

## MMU

This brings us to the next major portion of the 68030, and the one that is the difference between the 68030 and all the previous versions of the 68000 family. This is the MMU or Memory Management Unit.

Don't confuse this with the Atari MMU (now called the MCU), because they have almost nothing in common besides an acronym. The ST's MMU is actually a DRAM controller; it is the "life support" hardware for the DRAM chips. It allows the DRAMs to be accessed by the rest of the hardware, including the video, DMA, DMA sound and CPU. The 68030 MMU is different. It is an internal 68030 system that controls how the 68030 interacts with external memory, rather than hardware for controlling and supporting external memory.

The 68030 MMU actually sits on the address lines between the 68030 CPU and the address pins on the chip itself. When it's turned on, it uses a set of tables to determine what action or address will result from the 68030 attempting to access a particular address. These tables can either be in external memory or in still another cache exclusive to the MMU called the Address Translation Cache. The purpose of this cache is to speed up the fetching of translation information from memory. If the number of translation tables is small enough, they can all fit inside the cache, which make the MMU translations completely invisible as far as speed goes. If the MMU must search external memory for the tables, then CPU memory accesses can be slowed down considerably.

The addresses generated by the 68030 CPU are referred to as logical addresses. For instance, the CPU may execute an instruction to read from memory location \$10. Address location \$10 is the logical address of the read. Depending on the setup of the 68030 MMU, however, the physical address generated at the output pins of the 68030 chip may be something completely different. For instance, it's possible to program the 68030 MMU to make the 68030 access location \$1000010 whenever it tries to access location \$10.

## MMU Uses

The MMU can also be used to prevent the 68030 from accessing certain areas of memory at all. This is useful for implementing multitasking setups. The MMU can be set up to prevent different tasks from

messing up each other's memory spaces. This can allow one task to crash without affecting others, thus allowing the other tasks to continue, or even crash on their own, if that's what they do.

The MMU can also be programmed to disable the internal caches on accesses to any or all memory locations. This is how it can be used to correct the bug in the cache inhibit line.

The MMU gives a programmer incredible control over the behavior of the computer. It can be used for simple debugging tasks by limiting the ability of a program to just access areas of memory and hardware that it's supposed to, and trapping for any unintended accesses to memory locations it should not touch.

It can be used to simulate memory or hardware that the system does not actually have. It can even be used to set up multiple "virtual machines" in a system—a "virtual Mac," "virtual Amiga" and "virtual Atari" could all be running at the same time on a system that was not any of the three. Of course, this all requires a great deal of programming, but it is all possible through use of the MMU in the 68030.

## The 68EC030

All of the above information on the MMU does not apply to the 68EC030 chip. The EC chip, as I'll call it, is originally the result of Motorola's attempt to make use of 68030 chips that failed testing. In physical area, the MMU circuitry occupies more than two-thirds of the 68030 chip. This means, obviously, that the majority of

# EdHak

## 2.3

For entire  
ST & TT line

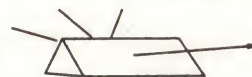
**Edit ANYthing ANY Size ANYtime**  
A Desk Accessory / PRG to edit  
Text, Data, Binary Files, Disk Sectors, RAM

### New features include:

- Use as capture buffer for Stalker (by Grlbnf)
- Convert buffer to hex for editing/dumping
- Support of Atari clipboard
- Auto-indent, Goto line, Goto byte, and many other enhancements!

Available from your Atari dealer  
or order directly from Clear Thinking.  
Outside US add \$3 S/H.

Upgrades  
\$5.00



\$29.95

Visa/MasterCard orders: 313-971-8671  
Clear Thinking PO Box 715 Ann Arbor, MI 48105



68030 failures were likely to be in the form of some problem with the MMU.

Motorola decided to test the defective chips with the MMU disabled, meaning that only the two transparent translation registers in the MMU would function. As long as those functioned, it was still possible to correct the cache bug, although the 16 megabyte size of the block affected by the transparent translation registers was very coarse.

Since this "new" chip put some constraints on the design of any systems that used this subset of the 68030's functions, Motorola called this the 68EC030. The EC is short for Embedded Controller, a name used to refer to microprocessors used in systems commonly designed to run software specially written to control industrial equipment or other dedicated systems. In this fashion, Motorola felt the designer who used the chips would not have to be concerned about software written by third parties that either assumed that any 68030 was the fully functional version or that attempted to access hardware in such a fashion that it got caught by the cache bug.

An EC running in an Atari, or other 68030-based computer, can still run safely either by switching off the data cache, which takes a sizable toll on performance, or by using the transparent translation registers (referred to as the Access Control Registers) to make all supervisor mode data accesses non-cacheable.

This takes a much smaller toll on performance on an Atari, but since the Macintosh runs in supervisor mode all the time, these two methods work out the same when the EC is used in the Mac.

Since the data cache must be disabled during these situations, burst mode is also disabled, since it requires the cache to operate. For systems that use burst mode accesses, this causes an even greater slowdown.

It's possible to run an EC chip without taking any precautions at all, but if some software goes directly to the hardware with a word wide write, it may cause problems.

This doesn't mean the 68EC030 should not be used for accelerators or computers; it just means that compatibility becomes the burden of the hardware designer rather than Motorola or the software developer. Atari does not currently plan to use the 68EC030 in a computer, so this doesn't seem to be something we have to worry about.

This should give you a taste of the features of the 68030. As you can see, it has the performance and capabilities to raise Atari computers to a new level of power. Once enough 68030 machine are out there to spur on developers, you'll see applications for your Atari computer that you've never seen before.

[About the Author: George Richardson of Merlin Group, Inc. is the designer of Gadgets by Small's MegaTalk board and SST 68030 upgrade. He can be reached via CompuServe at 75275,1363 or via GENie at G.RICHARDSO1.]

Since 1983



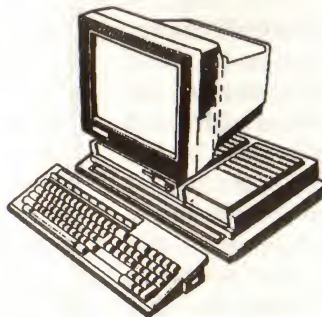
*Small Business & Home Specialists*

**Software, Hardware & Accessories for ALL Computers**

**Authorized Sales  
and Service**

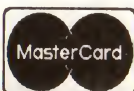
GENie Address M.DRYSDALE

**Trade-in your 8-bit for an ST**  
*Call for further details.*



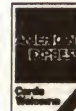
- ☐ ABC 386SX Laptop
- ☐ ABC 386 40MHz
- ☐ TT030
- ☐ MEGA STe
- ☐ STBOOK
- ☐ Portfolio
- ☐ 8 - Bit
- ☐ Accessories

**Software Discounted 15 - 30% Everyday**



**Mail Orders Accepted**

**COMPUTER BULLETIN BOARD 445-1313**





# accusoft·st

Quality Public Domain and Shareware for the Atari ST Computer Family Since 1986 - at the LOWEST Prices.

Accusoft-ST has what we believe to be the finest and fastest growing PD collection of IMG format clip art available. Our special collection has been scanned at 300 DPI (or reset to 300 DPI) for the maximum convenience of laser printer users. Of course, it looks great on dot matrix printers too! The Accusoft IMG collection is on Double-sided disks, containing an average of over 600K per disk (these are BIG images with lots of detail). Each disk includes our own ACCUVIEW viewer and slide-show program for IMG format files. A complete description of all our disk are beyond the scope of this ad, but listed below are our most popular disks. Our Catalog V4.0 disk is available and contains a complete list of all Accusoft-ST PD and Shareware disks. We have what you are looking for in games, utilities, clip art, applications, children's programs, midi, and much more.

#630 Birds #1  
#631 Birds #2  
#632 Business & Industry #1  
#633 Business & Industry #2  
#634 Business & Industry #3  
#635 Butterflies #1  
#636 Castles #1  
#637 Cathedrals #1  
#638 Civil War #1  
#639 Mammals #1  
#640 Mammals #2  
#641 School #1  
#642 Ships #1  
#643 Sports #1  
#644 Sports #2  
#645 Sports #3  
#646 Sports #4  
#647 Transportation #1  
#648 Transportation #2  
#649 Travel #1  
#650 Travel #2  
#651 Travel #3  
#652 Travel #4  
#653 Christmas #1  
#656 Egypt #1  
#657 Egypt #2  
#658 Christmas #2  
#659 Christmas #3  
#660 Christmas #4  
#661 Holidays #1  
#662 Holidays #2  
#663 Holidays #3  
#664 Holidays #4  
#666 Teddy Bears #1  
#667 Teddy Bears #2  
#668 Insects #1  
#669 Famous Composers #1  
#670 Sea Shells #1  
#671 Men #1  
#672 Houses #1  
#673 Houses #2  
#674 Faces #1  
#675 Early Civilization #1  
#676 Early Civilization #2  
#677 Beatrix Potter #1  
#678 Beatrix Potter #2  
#679 School #2  
#680 Birds #3  
#681 Children #1  
#682 Women #1  
#683 Women #2  
#684 Women #3  
#685 Women #4  
#686 Art Nouveau Nature #1  
#687 Art Nouveau Nature #2  
#688 Cats #1

#689 Food #1  
#690 Food #2  
#691 Food #3  
#692 Food #4  
#693 Food #5  
#694 Gibson Girls  
#695 Sea Life #1  
#696 Birds #4  
#697 Family #1  
#698 Family #2  
#699 Dinner Time #1  
#700 Weddings #1  
#701 Weddings #2  
#702 Women #5  
#703 Children #2  
#704 Japanese Designs #1  
#705 Holidays #5  
#706 Flowers #1  
#707 Cartoon Style #1  
#708 Medieval People #1  
#709 Music #1  
#710 Music #2  
#711 Pictorial Frames #1  
#712 Pictorial Frames #2  
#713 Pictorial Frames #3  
#714 Women #6  
#715 Fish #1  
#716 Chinese Designs #1  
#717 Women #7  
#718 Schools #3  
#719 Fish #2  
#720 French Revolution #1  
#721 Text & Fancy Caps #1  
#722 Men #2  
#723 Men #3  
#724 Men #4  
#725 Ships #2  
#726 Business & Industry #4  
#727 Business & Industry #5  
#728 Oriental Motif #1  
#729 Oriental Motif #2  
#730 Oriental Motif #3  
#731 Americana #1  
#732 Reptiles & Amphibians #1  
#733 Sea Shells #2  
#734 Show Time #1  
#735 Christmas #5  
#736 Sports #5  
#737 Tennis #1  
#738 Tennis #2  
#739 Common Stuff #1  
#740 Common Stuff #2  
#748 Music #3  
#749 Music #4  
#750 IMG Utilities #1  
#764 Hands #1

Call or Write for  
Catalog Disk V4.0  
**FREE**



(This Castle is Full-size) #636

Accusoft-ST has the LOWEST regular prices for all PD & Shareware disks, including our Double-sided clip art collection:

1-10 disks = \$2.75 each; 11-20 disks = \$2.50 each;  
21+ disks = Only \$2.25 each. Shipping/Handling is  
\$3.00 per order for U.S.A. & APO/FPO; \$5.00 for  
Canada/Mexico. COD's = \$3.00(48 States Only)  
Washington State add 8.2% sales tax. All funds in  
US dollars. Sorry no credit card orders.

# accusoft·st

PO Box 355

Edmonds, WA 98020

U.S.A

Telephone/Fax (800) 676-2402

Clip Art in this Ad has been reduced to only 30 - 50 % of original scanned size!



# The Power of Advertising?

## Tim Holt ACCEPT

I've never met John Scully, CEO of Apple Computers. I have also never met any of the Tramiels. I would venture to say, however, that if John Scully called up some company—say, WordPerfect—and said "Jump," the folks at WordPerfect would ask "How High and Where is the Hoop?"

If Sam Tramiel called up a company—say, WordPerfect—and said "Jump!" the people at WordPerfect would probably say something like "We'll have our people call your people, and we might do lunch. OK?"

Therefore, when I hear or read an article about John Scully, I will venture to say a lot more people pay attention to it than a Sam Tramiel article. With that in mind, I relate a recent item I saw involving John Scully.

While looking through a recent *Newsweek*, I ran across an ad for the American Association of Advertising Agencies (AAAA). The ad contained some quotes from John Scully about the effectiveness of advertising in today's market. I got to thinking about the Atari advertising campaign that seems to be getting off the ground now, and what might have happened if Atari had advertised a few years ago.

*"The landscape is strewn with the wreckage of fine companies who built great products—that no one ever heard about."*

Do you *still* have to explain to your peers that Atari is not a game machine? I do. Just recently, I was trying to convince a fellow teacher to look at an Atari MegaSTE, like I own. He looked at the Atari brochure I handed him—it even had a pop up of the MegaSTE/4. The title of the brochure was "Mega STE: Business Computer."

After looking at the brochure, he asked, "But does it run *real* programs?"

Real programs?!? I couldn't help but think that if Atari had really pushed the ST line of computers a few years earlier, I still wouldn't have to be answering questions like that.

*"Advertising builds brands."*

I recently got into a "friendly" discussion on a local BBS about MIDI music and Atari. A fellow BBSer said he started out with an Atari for MIDI, but he switched to an IBM because his fellow students all used IBM machines.

I replied that Atari cannot be beat for MIDI, but he put up a decent argument that since no one else at his entire University music department used an Atari, he felt like an odd ball.

Peer pressure is very important in the world of computers, and although word of mouth is important, there has to be a first person to buy a computer. That "first" person will, more likely than not, be influenced by advertising.

It was nice to see the ads in *Discover* magazine in the last few months, and I hope that type of advertising continues. However, I must confess I was a bit confused as to why Atari would run a MIDI-oriented advertisement in a science/education magazine. Who are they trying to target here? Do a large number of professional musicians read *Discover: The World of Science*?

Would not an ad that demonstrated the educational benefits of the ST/TT be more appropriate here? *Discover* is published by the Walt Disney Corporation, so how about an ad showing how easy it is to draw and animate Mickey Mouse?

Who is Atari advertising to? Granted, the same MIDI ad ran in *Keyboard Magazine*, and that was a very appropriate place to put a MIDI ad. But a MIDI advertisement in a science magazine? I wonder...



"Most of our competitors of 1981 no longer exist. Some had great products. What they forgot to have was great advertising."

How long will Atari advertise? How long will Atari exist? I believe those two questions go hand-in-hand. Have you ever seen an advertisement for the TT? Have you seen an Atari ad in a place where you really did not expect to see one? Unfortunately, all the ads I have ever seen for the Atari line of computers were ones where I had to actually go out and look for them.

Have you seen any recent Atari ads in *BYTE*? In *Newsweek*? In *Time*? Sure, for the Portfolio, but what about the computers? We have been told the MegaSTE and the TT are the "flagships of the fleet," the pride and joy of Atari Computer.

Okay, let's put the money where the mouth is. Sam, Leonard, time to call up *BYTE* magazine—or have Bob Brodie do it, since that's now part of his job. Tell *BYTE* you will spend \$X million in advertising in 1993 if *BYTE* starts running some decent articles about the Atari line of computers.

And I don't mean Jerry Pournelle telling us how he hasn't had time to look at the TT or that the boot up time is 12 seconds too long for his taste. I'm talking *real* articles, about productivity, hardware, etc.

By the way, if you think it sounds a little immoral to demand good press for advertising bucks, welcome to the real world folks. I don't think I have ever seen a bad review for a movie in *Newsweek* if the movie had a full page ad running there.

Demand the coverage. Let us see that Atari's management is as proud of these computers as the users who still buy them. Let us see that you are truly behind the "flagship" of the fleet. I challenge you to start advertising. Big time!

If you people in Sunnyvale still think advertising is not the way to go, consider that Coca Cola and Pepsi spend *billions* a year on advertising. Why? Surely they have worldwide name recognition. Surely the product pretty much sells itself. Why would they advertise so much? Because they know that even the slightest edge can translate into big bucks. A one percent increase in sales, due to an advertising campaign, easily pays for the ads. Profits increase. Sales increase. Everyone is happy.

"Advertising lets you express not only what you are, but what you are trying to become. It's not just a selling tool, it's a leadership tool—a flag on the mountain to rally and inspire your people."

It is time to rally and inspire. Let's get some severe ads going. Not just MIDI...not just DTP...but ads for everyone. Put them in *Good Housekeeping*, *Playboy*, *Life*, *Time*, *Newsweek*! All are very nice vehicles to take the message out to the world that "the Atari is a kick butt computer, and if you don't own one, you are falling behind the rest of the world." No more excuses about lack of product. No more excuses about this shortage and that shortage. The only shortage coming from Atari now is advertising. We're at the correct spot in the correct medium. The US is ready. The question is: is Atari ready?

"Only advertising can communicate not just information, but emotion and soul."

I know of no other product that inspires loyalty like the Atari computer. There are thousands of us out here that, through richer, poorer, sickness and health, have stuck by these machines. Surely, that emotion, that loyalty, that love, can somehow be communicated through an advertising campaign. I look forward to seeing it.

## This is your invitation to the 1992 Connecticut AtariFest

Date: August 15th & 16th  
Time: 10:00AM-5:00PM  
Place: Sheraton Hotel at Bradley Int'l  
Airport, Hartford, CT  
Price: \$5.00 for a 1 day ticket  
\$8.00 for a 2 day ticket

Dinner & Dancing Saturday Evening

### Anticipated Attendees:

|                         |                           |                     |
|-------------------------|---------------------------|---------------------|
| Atari Computer Corp.    | Atari Explorer            | A & D Software      |
| Boston Computer Society | Dr. T's Software          | GENie               |
| Gribnif Software        | GFA Basic                 | ICD Inc.            |
| Joppa Software          | Manny's Music             | Sam Ash Music       |
| Step-Ahead Software     | Soft-Logik Publishing     | Tidbit Software     |
| The Computer Zone       | Toad Computers<br>& more. | 8-BIT user's groups |

The Affiliated CT Atari Groups would be honored with your presence. For further information, call 203-332-1721 or 203-637-1034 and ask for Brian or Doug.



Ask For  
Ginger, Doug  
or Dianna!



# Rising Star Computers

ORDERS 800-252-2787 ★ INFO 513-254-3160 ★ FAX 513-254-7970

THE LARGEST ATARI ST DEALER IN THE MIDWEST!



## Games, Hot Off the Press for ST!

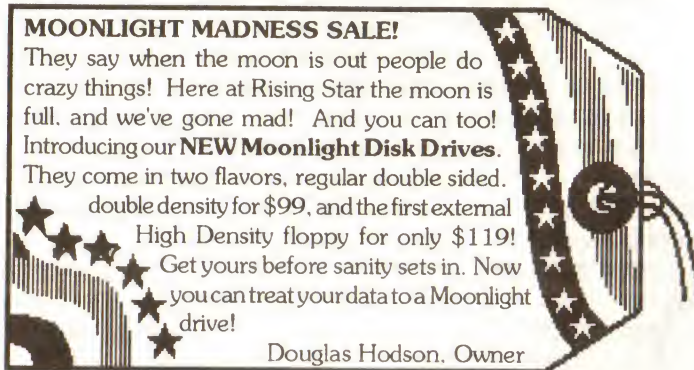
|                                |                              |                             |                               |
|--------------------------------|------------------------------|-----------------------------|-------------------------------|
| Air Combat Aces .....\$42      | Leaving Teramis .....\$25    | Sleeping Gods Lie .....\$32 | Super Space Invader .....\$37 |
| Air/Sea Supremacy .....49      | Legend of Faerghail .....42  | Smash TV .....41            | Suspicious Cargo .....38      |
| Alien Storm .....38            | Leisure Suit Larry 3 .....39 | Space Ace II .....38        | Switchblade II .....36        |
| Armour-Geddon .....37          | Lemmings Complete .....34    | Space Quest 3 .....31       | The Ball Game .....37         |
| Baby Jo .....38                | Loom .....39                 | Spot .....31                | The Simpsons .....38          |
| Barbarian II .....34           | Lords of Chaos .....35       | Steve McQueen .....39       | Their Finest Hour .....45     |
| Blackjack Plus 3 .....32       | Lotus Turbo Chal. II .....39 | Stratego .....44            | Ultima V .....39              |
| Breach II .....33              | Maupiti Island .....40       | Strike Fleet .....39        | WWF Wrestlemania .....38      |
| Captain Planet .....36         | Mega Twins .....36           |                             |                               |
| Champ of the Raj .....25       | Metal Mutants .....38        |                             |                               |
| Chaos Strikes Back .....25     | Midwinter II .....45         | 1st Word Plus 3 .....\$72   | Multi Desk Deluxe .....\$32   |
| Cruise For Corpse .....39      | Mig-29M Super .....54        | Avant Vector .....459       | Multi GEM Plus .....109       |
| Curse Azure Bonds .....45      | Moonfall .....36             | Calamus .....129            | MVG 2.0 .....39               |
| Deuteros .....43               | Pepe's Garden .....36        | Cal Outline Art .....171    | MVG Modules # 1/2 .....22     |
| Diplomacy .....32              |                              |                             |                               |
| Disciples of Steel .....35     |                              |                             |                               |
| Double Dragon III .....36      |                              |                             |                               |
| Dragonflight .....39           |                              |                             |                               |
| Dragons Lair III .....39       |                              |                             |                               |
| Drakkhen .....39               |                              |                             |                               |
| Dungeon Master .....25         |                              |                             |                               |
| Eco Phantoms .....35           |                              |                             |                               |
| Elvira .....44                 |                              |                             |                               |
| F-15 Strike Eagle II .....45   |                              |                             |                               |
| F-19 Stealth Fighter .....43   |                              |                             |                               |
| Falcon .....38                 |                              |                             |                               |
| Fighter Command .....41        |                              |                             |                               |
| Flight Of The Intruder .....39 |                              |                             |                               |
| Fools Errand .....37           |                              |                             |                               |
| Frantic .....25                | Populous II .....\$46        | Card File 3 .....\$27       | Neodesk III .....\$47         |
| Gauntlet 3 .....39             | Powermonger .....44          | DC Data Diet .....48        | Page Assistant .....38        |
| Gods! .....34                  | Predator II .....37          | DC Shower .....19           | Pagestream 2.10 .....179      |
| Guardians .....32              | Quest and Glory .....43      | DC Utilities 2.0 .....25    | Phasar 4.0 .....59            |
| Hard Drivin' II .....37        | Railroad Tycoon .....46      | Diamond Back II .....37     | Replica .....18               |
| Heimdall .....47               | Realms .....47               | Hard Disk Sentry .....33    | Scan Lite .....17             |
| Hero Quest .....37             | Robin Hood .....38           | Hotwire Plus .....45        | Stealth .....31               |
| Hillstar .....34               | Robozone .....37             | Image Cat 2.0 .....26       | That's Write .....159         |
| Kid Gloves 2 .....39           | Shadow Sorcerer .....38      | Lattice C Ver. 5 .....209   | Word Flair II w/FMS .....139  |
| Killing Game Show .....36      | Shadow of Beast II .....38   | LDW Power 2 .....120        | Word Perfect .....169         |
| Knightmare .....42             | Sim City/Populous .....42    | Lookit and Popit .....26    | Word Writer ST .....54        |

## Productivity

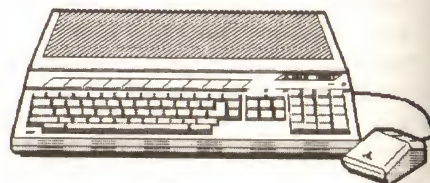
### MOONLIGHT MADNESS SALE!

They say when the moon is out people do crazy things! Here at Rising Star the moon is full, and we've gone mad! And you can too! Introducing our **NEW Moonlight Disk Drives**. They come in two flavors, regular double sided, double density for \$99, and the first external High Density floppy for only \$119! Get yours before sanity sets in. Now you can treat your data to a Moonlight drive!

Douglas Hodson, Owner



## Atari Computers!



|                         |              |
|-------------------------|--------------|
| Atari STE 1MB           | \$399        |
| Atari STE 2MB           | \$499        |
| Atari STE 4MB           | \$599        |
| <b>Atari Mega STE's</b> | <b>\$689</b> |

## Monitors

|                              |       |
|------------------------------|-------|
| Atari SC1435 (Color)         | \$359 |
| Atari SM147 (Mono)           | \$199 |
| Star*Sync System             | \$499 |
| (Sharp Color and Monochrome) |       |

## Floppy Drives

|                        |       |
|------------------------|-------|
| Moonlight 3.5" (DS/DD) | \$99  |
| Moonlight 3.5" (DS/HD) | \$119 |
| Master 3S (DS/DD)      | \$129 |

## Modems

|                 |      |
|-----------------|------|
| Supra 2400 Baud | \$97 |
| Zoom 2400 Baud  | \$89 |

## Disks, etc.

|                        |             |
|------------------------|-------------|
| 3.5" Blank Disks       | 49¢         |
| 3.5" Disk Labels (500) | \$8         |
| <b>DLM Combo</b>       | <b>\$18</b> |

**WE INSTALL RAM UPGRADES  
FREE OF CHARGE!  
(WITH ANY BOARD PURCHASE)**

## Star Hard Drives!

**WE BUILD THE BEST!**

- \* FAST ACCESS!
- \* ICD HOST!
- \* FREE CLOCK!
- \* FORMATTED!
- \* GUARANTEED!



|                 |       |
|-----------------|-------|
| STAR 52 Meg     | \$469 |
| STAR 85 Meg     | \$529 |
| STAR 105 Meg    | \$569 |
| STAR 120 Meg    | \$619 |
| STAR Syquest 44 | \$599 |
| STAR Syquest 88 | \$789 |

## ASK FOR OUR PUBLIC DOMAIN SOFTWARE CATALOG!

### Trade Up!

If you own a 520 or 1040ST consider trading up to an STE! They're really fast and fun. Call us or better yet call me, Doug, and let me tempt ya!

### MultiSync TradeUp!

|                            |       |
|----------------------------|-------|
| Star*Sync Monitor .....    | \$449 |
| Star*Sync Switch Box ..... | \$59  |
| Star*Sync System .....     | \$499 |

The Mother of All TradeUp's!  
Three Resolutions, One Great Price!

### WE REPAIR ST's!

If your ST is feeling ill or not doing anything at all, it's time for a checkup. We at Rising Star have been repairing Atari equipment for the last 10 years! Yes!, 10 years ago when the Atari 400 with 16K was the thing. We also repair monitors and disk drives!

### Recycled ST's!

|                   |                  |
|-------------------|------------------|
| 520 ST .....\$119 | SM124 .....\$129 |
| 1040 ST ...\$229  | SC1224 ...\$199  |

### VITAL STATISTICS

Douglas Hodson, Age 28, Height 6'0", Weight 160lbs, Single, Will Do Most Anything for a Date!

**Mail Orders To: P.O. Box 20038 ★ Dayton, OH 45420**

**WRITE FOR FREE CATALOG.** If ordering by mail, call ahead to get totals. No extra charge for credit card orders. APO & FPO - Ohio residents add 6.5% sales tax - Returns subject to 20% restocking fee. Defectives require return authorization number for repair or replacement. Prices and availability subject to change without notice. We accept VISA, MasterCard and Discover.

**ORDERING HOURS: Mon-Fri, 10AM - 9PM ★ ORDER STATUS HOURS: Mon-Fri, 6PM-9PM.**





# Rising Star Computers

ORDERS 800-252-2787 ★ INFO 513-254-3160 ★ FAX 513-254-7970



## New Multi-Game Packs!

|                                        |                                       |
|----------------------------------------|---------------------------------------|
| <b>16 Bit Hit Machine</b> .....\$37    | Tennis Tour, Satan, After the War     |
| Super Cars, Skidz, Switch Blade,       | <b>Max Pack</b> .....\$43             |
| Axels Magic Hammer                     | Turricane 2, ST Dragon, Swiv, Night   |
| <b>Air Combat Aces</b> .....\$42       | Shift                                 |
| Gunship, Falcon, Fighter Bomber        | <b>Mind Games</b> .....\$36           |
| <b>Air Sea Supremacy</b> .....\$49     | Waterloo, Conflict Europe, Austerlitz |
| Gunship, Silent Service, Carrier       | <b>Ninja Collection</b> .....\$35     |
| Command, P47 Thunderhawk, F-16         | Double Dragon, Shadow Warriors,       |
| Strike Eagle                           | Dragon Ninja                          |
| <b>Big Box</b> .....\$42               | <b>Platinum</b> .....\$39             |
| Teen Queen, CPT Blood, Safari          | Black Tiger, Strider, Forgotten       |
| Guns, Bubble +, Tintin on the Moon,    | Worlds, Ghouls and Ghosts             |
| Purple Saturn Day, Jumpin              | <b>Premier Collection</b> .....\$25   |
| Jackson, Hostages, Bobo & Krypton      | Tusker, IKT Ninja Remix, Flimbo's     |
| Egg                                    | Quest                                 |
| <b>Challenges</b> .....\$35            | <b>Quest and Glory</b> .....\$43      |
| Stunt Car Racer, Kick Off, Super       | Cadaver, Midwinter, Iron Lord,        |
| Ski, Fighter Bomber, Pro Tennis        | Bloodwych                             |
| Tour                                   | <b>Rainbow Collection</b> .....\$32   |
| <b>Coin Op Hits 2</b> .....\$45        | New Zealand Story, Rainbow            |
| Ghouls and Ghosts, Vigilante, Ninja    | Islands, Bubble Bobble                |
| Spirit, Hammerfist, Dynasty Wars       | <b>Renaissance</b> .....\$24          |
| <b>Dizzy Collection</b> .....\$35      | Invaders, Rockstorm, Megapede,        |
| Treasure Island Diz, Fast Food,        | Draxians                              |
| Fantasy World Diz, Kwik Snax,          | <b>Sporting Gold</b> .....\$35        |
| MagiCland Diz                          | CA Games, Games-Winter and            |
| <b>Finale</b> .....\$29                | Summer Editions                       |
| Ghosts and Goblins, Paperboy,          | <b>Sporting Winners</b> .....\$25     |
| Space Harrier, Overlander              | Daily Double, Word Snooker, Brian     |
| <b>Four Wheel Drive</b> .....\$43      | Clough's Football                     |
| Lotus Esprit Turbo, Toyota Celica,     | <b>Super Heroes</b> .....\$46         |
| Team Suzuki, Combo Racer               | Ninja 2, Indiana Jones Last           |
| <b>Grandstand</b> .....\$45            | Crusade, Strider 2, James Bond        |
| Gazza's Super Soccer, Pro Tennis       | Spy Who Loved Me                      |
| Tour, Continental Circus, World        | <b>Super Sim Pack</b> .....\$43       |
| Class Leaderboard                      | Intl 3D Tennis, Crazy Cars 2, Italy   |
| <b>Hollywood Collection</b> .....\$44  | 1990, Airbourne Ranger                |
| Batman the Movie, Robocop,             | <b>TNT</b> .....\$35                  |
| Indiana Jones Last Crusade,            | Hard Drivin, Toobin, Dragon Spirit,   |
| Ghostbusters                           | Xybots, A.P.B.                        |
| <b>Hoyles Games I</b> .....\$23        | <b>Two Hot Two Handle</b> .....\$45   |
| Solitaire, Gin Rummy, Crazy Eight,     | Golden Axe, Super Off Road, Total     |
| Old Maid, Hearts                       | Recall, Shadow Warrior                |
| <b>Hoyles Games II</b> .....\$23       | <b>Virtual Reality</b> .....\$41      |
| 28 Solitaire Games                     | Starglider 2, Carrier Command,        |
| <b>Intelligent Strategy</b> .....\$36  | Midwinter, Intl Soccer, Stuntcar      |
| Chess, Bridge, Draughts,               | Racer                                 |
| Backgammon, Go                         | <b>Virtual Reality 2</b> .....\$36    |
| <b>James Bond Collection</b> .....\$41 | Resolution 101, Wierd Dreams,         |
| Spy Who Loved Me, Live and Let         | Thunderstrike, Sentinel, Virus        |
| Die, License to Kill                   | <b>Virtual Worlds</b> .....\$45       |
| <b>Magnetic Scrolls</b> .....\$34      | Driller, Total Eclipse, Castlemaster, |
| Fish, Corruption, The Guild of         | The Crypt                             |
| Thieves                                | <b>Winners</b> .....\$43              |
| <b>Magnum</b> .....\$37                | Thunderblade, LED Storm,              |
| RVF Honda, Oriental Games, Pro         | Blasteroids, Impossible Mission 2     |

## EDUCATIONAL SOFTWARE

### Get ST Smart!



Star Student

**We work with schools and accept PO's!**

|                                     |      |
|-------------------------------------|------|
| Fun School IV (under 5 yrs) .....   | \$35 |
| Fun School IV (5-7 yrs) .....       | 35   |
| Fun School IV (7-11 yrs) .....      | 35   |
| Geography Tutor .....               | 31   |
| Geometry, Vol. 2 (Arrakis-13) ..... | 19   |
| Kid Talk .....                      | 19   |
| Kidpainter .....                    | 24   |
| Kidpublisher Professional .....     | 24   |
| Kids Stuff .....                    | 19   |
| Kinderama .....                     | 23   |
| Linkword: French .....              | 19   |
| Linkword: German .....              | 19   |
| Linkword: Spanish .....             | 19   |
| Magical Anagrams .....              | 37   |
| Magical Myths .....                 | 24   |
| Maps and Legends .....              | 22   |
| Math Blaster Plus .....             | 24   |
| Math Talk .....                     | 19   |
| Math Talk Fractions .....           | 19   |
| Math Wizard .....                   | 23   |
| Mavis Beacon Teaches Typing .....   | 36   |
| Mixed Up Mother Goose .....         | 22   |
| My Letters, Numbers & Words .....   | 19   |
| Physics, Vol. 1 .....               | 21   |
| Pre Calculus (True Basic) .....     | 31   |
| Probability Theory .....            | 29   |
| Read & Rhyme .....                  | 23   |
| Read A Rama .....                   | 29   |
| Speller Bee .....                   | 19   |
| Statistics, Vol. 1 .....            | 14   |
| Super Kidgrid .....                 | 17   |
| Telegram .....                      | 17   |
| Trigonometry (True Basic) .....     | 31   |
| Typing Tutor/Word Invaders .....    | 24   |
| Algebra 1, Vol. 1 .....             | \$24 |
| Algebra 2, Vol. 1 .....             | 21   |
| Algebra 2, Vol. 2 .....             | 21   |
| Algebra 3, Vol. 1 .....             | 24   |
| All About America .....             | 37   |
| Animal Kingdom .....                | 23   |
| Arithmetic .....                    | 31   |
| Bentley Bear Alphabet Tutor .....   | 21   |
| Bentley Bear Equation Builder ..... | 21   |
| Bentley Bear General Store .....    | 21   |
| Bentley Bear Magical Anagrams ..... | 21   |
| Bentley Bear Magical Math 1-3 ..... | 21   |
| Bentley Bear Memory Master 1 .....  | 21   |
| Bentley Bear Memory Master 2 .....  | 21   |
| Bentley Bear Spelling Bee .....     | 21   |
| Biology, Vol. 1-4 .....             | 21   |
| Calculus .....                      | 29   |
| Chemistry, Vol. 2 .....             | 18   |
| Code Blue .....                     | 41   |
| Count and Add .....                 | 31   |
| Decimal Dungeon .....               | 23   |
| Discrete Math .....                 | 29   |
| Educational Humor Imaging .....     | 15   |
| EZ Test Writer .....                | 31   |
| First Letters & Words .....         | 19   |
| First Math .....                    | 19   |
| First Shapes .....                  | 19   |
| Fraction Action .....               | 23   |
| Fun School II (under 6 yrs) .....   | 29   |
| Fun School II (6-8 yrs) .....       | 29   |
| Fun School II (over 8 yrs) .....    | 29   |
| Fun School III (under 5 yrs) .....  | 35   |
| Fun School III (5-7 yrs) .....      | 35   |
| Fun School III (over 7 yrs) .....   | 35   |

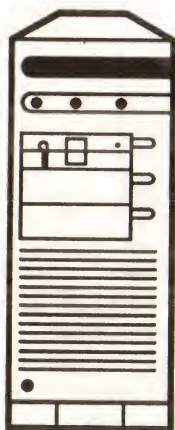
**Next Month  
Look for MIDI  
Software!**





# IBM Blues

Michelle Gross  
Milatari



The declaration "Atari users are dropping like flies around here lately" was recently posted on our own Milatari BBS. It can hardly be argued. User groups are folding. Many who are still in existence are cutting back on services.

I'm sure you have noticed the advent of MAC and IBM public domain collections being offered by AIM and other user groups, including my hometown club, MilAtari. This indicates the more widespread use of emulators.

Disgruntled 8-biters who have held out upgrading for so long are not upgrading to the ST, STe or TT and longtime Atarians are buying IBM compatibles or Macintoshes. Yes, the Atari user base is shrinking.

A fellow user group member was heard to say "I would not recommend an Atari computer to a friend. There just isn't enough software available out there." I can understand his attitude. I was recently in a position to promote the use of an Atari Computer, and I resisted because of that same uncertainty.

Not long ago, I became involved in a newsletter committee at our church. Church leaders were interested in

starting a monthly newsletter to improve communications and reach out to the poinsettias and Easter lilies of the parish. They wanted the newsletter to be put together in-house, and they were considering similar changes with their weekly bulletin. Computerizing parish records was also in the works.

A separate committee was formed about that time to purchase the computer for the parish. Naturally, I joined that committee as well. (MilAtari members would appreciate this, as I seem to be known for my propensity for joining committees). It was assumed from the onset that the computer would be an IBM compatible. One committee member owned a Macintosh and I own an Atari, but the assumption was still IBM. For a variety of reasons, I bit my tongue and resisted the urge to recommend looking at alternatives.

Eventually we purchased an IBM compatible, an overpriced and overrated church census program, and desktop publishing software. I was offered the position of Newsletter and Bulletin Editor, and I took the job.

I've now had firsthand experience using the "other" computer.

In the meantime, my dad developed a need for a home computer. Again, I felt that twang of guilt, and the hesitation in recommending the Atari for all the right reasons: you can't find many dealers, the software is drying up, no local stores carry Atari software, there are no glossy magazines, etc., etc., etc.

Dad lives in South Carolina and we had planned to pay him a visit right after the Chicago ComputerFest by Atari. After having been to an all Atari show, we were all pumped up over our own brand of computer. We then thought we would take the opportunity to visit the "infamous" Atari store, Computer Studio, in Asheville, North Carolina, a mere hour from my dad's home.

On our initial visit to Computer Studio, Dad took along some MS-DOS software he had received as a result of his own volunteer activities. Because he expressed an interest in being able to run the software, Sheldon Winick, the store's owner, showed him the IBM clone he carries for just that type of customer. My heart sank. However, after careful



evaluation of what exactly his needs would be during the drive home, we came to the conclusion that Dad didn't need to run that software at all.

Meanwhile, I had gained more and more experience on the IBM clone at the office. Although I initially welcomed the thought of learning a new operating system and getting a feel for the IBM world, I quickly became disillusioned with Big Blue. I acquired a new appreciation for my little orphan at home. Once, after an especially difficult day at the office, I came home and blurted out, "If we had bought an IBM, it would be upstairs collecting dust!!"

My frustrations lie with the complexity of basic operations such as copying and deleting files, formatting, and even viewing directories. For seasoned 8-bit users, perhaps the MS-DOS environment is like a summer home, but for people who have never used a computer, or for ST-only users, this DOS is a nightmare come to life!

Installing programs is not simply a copy and run operation as it is with the Atari. Many programs require a change to the CONFIG.SYS or AUTOEXEC.BAT files, which the computer reads at boot up, similar to our own AUTO folder programs and accessories in an odd sort of way.

Are you used to loading your favorite accessories and fond of some of the AUTO folder programs on the ST, like Universal Item selector, Image Viewer, or the countless others available to us commercially and in the public domain? Well, forget them all...in fact forget the concept of accessories and boot disks in the IBM world. There are no boot disks, item selectors, or accessories as they exist on the ST (except under PC GEM, which is pretty much unsupported on the IBM, or under Windows, which is extremely slow on most systems).

While we're on the subject of item selectors, the MS-DOS way of handling files is unbelievably lacking...at least in the software I'm running. I found out very quickly why hard drives are not partitioned into smaller, manageable sections in the IBM world.

In my mind, there is something very logical about the use of directories and subdirectories for managing your programs and files. I rather like the use of partitions on my hard drive, so I don't have to wade through endless folders and files to find something. Having drive partitions set up—one for DTP, another for CAD, a small partition for games, and of course your boot drive partition—with folders/subdirectories for various programs is a neat and organized system.

The IBM item selector does not allow you to read the contents of floppy drives (or partitions) by the click of a button. Instead, one is reduced to command line entries while in the item selector to see what is on drive A or B. Yuk! None of the replacement item selectors I've seen within programs or shells or Windows even comes close to the ease of disk and file management from the Atari desktop.

Support is not what you would think in the IBM

world, either. I was amazed to find that many support lines are...would you believe...900 numbers?! Could you imagine the uproar if ISD, Codehead, or any of our other favorite developers announced that they would be instituting a 900 number, at a cost of \$2.00 a minute for technical support on a \$100 software product?!!!

We Atarians are spoiled. Not only do we enjoy a level of third-party support like no other, but we often are offered that support by the author of the software. I like the closeness and personal touch the smaller TOS market has to offer. MS-DOS, no thank you!

All the frustrations of the past months came to mind when I spoke to Dad about his impending computer purchase. I envisioned the problems he would encounter as a novice. Perhaps I was wrong in thinking that if I, an intermediate computerist with a working knowledge of basic disk operations, was frustrated by the MS-DOS environment, then it would be even more difficult for my Dad to deal with as a new user. How long would it take before the CPU became an oversized paperweight on the desk in his den?

After considering my own experiences, and knowing exactly what Dad would want to do with his computer, I decided I had no choice but to suggest he look at the Atari. The software he would need is out there... after all, how many word processors does a person really need? I have been using Word Writer since I bought the computer and have yet to find it lacking, in terms of my needs. From ST Writer to WordPerfect and now Calligrapher, the entire range of wordprocessor capability is available on the Atari ST/TT computer. The same is true of every other computer software category—spreadsheets, databases, DTP, etc.

Dad's needs were not much different than my own. Yes, I feel a little twinge of guilt when he has noted the masses of MS-DOS titles at stores all over town. But, I have seen the titles too, and I would answer that 90 percent of them are junk. We have junk on the Atari platform as well, but overall I firmly believe that our available software has the most bang for the buck: Calamus, PageStream, DynaCADD, WordPerfect, D.A. Brumleve's Kidprgs, Word Writer, etc., etc., etc. Besides, what is currently available in the ST line would keep the most industrious of users busy for years!

Dad did buy the ST and already has joined a user group. I've been able to help him get going over the phone, as has Sheldon Winick and his new-found friends in the Greenville Atari Computer Enthusiasts (thanks guys!). He's now online on GENIE (B.SCHLAEGER1). I do not regret making the recommendation to buy Atari. I often consider what Dad would now be doing if he had purchased a PC clone.

I now regret that I didn't speak up at my church. Never again will the argument "that's what everyone else is using" wash with me. I have promised myself that never again will I pass up another opportunity to introduce the family of Atari Computers to a new or seasoned user...for whatever reason.



# SFAN NEEDS HELP!

Mike Kelley

The Space, Fantasy & Adventure Network (SFAN) is the first and only satellite/cable television channel devoted entirely to the SF and Fantasy genre. The Atari community could benefit greatly from the existence of this channel, since Atari computers, especially the TT, would be used extensively on-screen and behind-the-scenes at SFAN.

SFAN is ready to debut to the world, and they want *your* help! Here's an excerpt from a recent SFAN press release sent to AIM:

Begin with Walter "Chekov" Koenig as a spokesperson and host/producer of a movie/TV oriented talk show, throw in Bjo Trimble (whose letter-writing campaign saved *Star Trek* in 1968: she afterward worked with Roddenberry), add *High Frontier* space advocacy group, stir in a bit of Atari Computer Corporation, mix with our slogan from Arthur C. Clarke ("Science fiction is the only genuine consciousness-expanding drug!"), throw in some serious industry personnel (including development, executive, marketing, and engineering professionals), fold in programming content and format nothing like "a cross between MTV and The Disney Channel," and put it in the determined hands of a Science Fiction, Fantasy, Adventure, and Horror devotee. Combine it all and you have SFAN.

At this moment, we are in the final stages of negotiation with another *Star Trek* original cast member and anticipate an initial meeting with yet another shortly. After face-to-face meetings, co-operation from a number of renowned science fiction writers awaits only our successful acquisition of funding.

SFAN is in negotiation for funding this project and we have taken this opportunity to give *Star Trek* and other enthusiast groups a "sneak preview" of our forthcoming public announcement and ask for your support. We need you to

help convince the cable industry of the existing audience and the support we can expect...they only understand the concrete reality of numbers.

Successful negotiation for funding can result in the money necessary to enable SFAN to launch promptly, but that does not guarantee carriage by the largest cable multi-system operators (MSOs). The top five MSOs constitute almost 40% of the nationwide cable systems and are on record as doubting the audience and the availability of programming for a channel like ours.

Back in 1968, NBC received over one million letters to save *Star Trek* from cancellation after its second season; a half million letters resulted in the naming of the Space Shuttle Enterprise; and a half million letters to President Reagan twice helped save the space program. The source for all of these letter-writing campaigns has been, and continues to be, dedicated fans. Bjo Trimble was pivotal in all these efforts and, as our Director of Viewer Relations, has made our goal delivery of a half million letters demanding SFAN to each of the five top cable multi-system operators: the sort of reality they understand.

However, "writing to your local cable company" is a waste of your time and money. Your letters serve only to fill their wastebaskets. You have to hit the cable MSOs at the executive level.

When the word to "engage" is passed, you can make yourself and your friends part of the success of SFAN by writing to the cable MSOs, proving you do exist and that you demand more than "The Persian Shopping Channel." We look forward to hearing from you and serving you for years to come. The addresses and names of the top five cable MSOs is provided here for your convenience.

It can *only* happen with you.



Tele-Communications Inc.  
John C. Malone, Pres. & CEO  
4643 South Ulster Street, Suite 600  
Denver, CO 80237  
Phone: 303-721-5500

(ATC-Warner-Paragon)  
American TV & Communications Corp.  
Joseph P. Collins Chmn. & CEO  
300 First Stamford Place  
Stamford, CT 06902-6732  
Phone: 203-328-0600  
Fax: 203-328-0690  
Warner Cable Communications  
James L. Gray, Pres. & CEO  
400 Metro Place North  
Dublin, OH 43017  
Phone: 614-792-7000  
Paragon Communications  
James P. Cottingham, CEO  
300 First Stamford Place  
Stamford, CT 06902-6732  
Phone: 203-328-0600

Continental Cablevision Inc.  
Amos B. Hofstetter, Jr., Chmn. & CEO  
Pilot House, Lewis Wharf  
Boston, MA 02110  
Phone: 502-223-3401

Comcast Corp.  
Ralph J. Roberts, Chairman  
1234 Market Street  
Philadelphia, PA 19107-3723  
Phone: 215-685-1700

Cox Cable Communications  
James O. Roberts, President  
1400 Lake Hearn Drive  
Atlanta, GA 30319  
Phone: 404-843-5000

## SAMPLE LETTER

MSO Address

XXXXXXX

XXXXXXX

Dear \_\_\_\_\_;

I support The Space, Fantasy & Adventure Network (SFAN), a new cable television channel about to launch its services. As an enthusiastic viewer of this type of programming I urge you to carry this service as soon as possible.

Based on the success of science fiction, fantasy, adventure, and horror movies, box office revenues as well as the amount spent on books, souvenirs, and collectibles, SFAN is an obvious choice for your systems.

I again encourage you to immediately make SFAN available to your subscribers.

Sincerely,

Your name  
Address

# TEC

## TOS Extension Card

Upgrade your  
520ST, 1040ST,  
Mega ST, or Stacy  
to Atari's new  
TOS 2.06!

"The TEC has given my computer a new lease on life ... it's a 'must-have' for any ST owner!" — Ron Luks, Founding Sysop of the Atari Forums on CompuServe

CodeHead Technologies is proud to announce the TOS Extension Card! This amazing device lets you install the very latest version of Atari TOS (2.06) in your 520ST, 1040ST, or Mega ST!

That's right! Now, you can have the same excellent system software that owners of Mega STes and TT030s are enjoying, without spending megabucks for a whole new computer system.

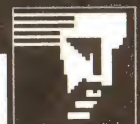
TOS 2.06 includes a totally redesigned GEM desktop that has most of the features of the popular alternative desktop programs, but with two big advantages: it doesn't gobble up large chunks of memory, and because it's in ROM it takes no time to load from disk!

The TEC fits in any model of ST computer, regardless of design, and it works with existing upgrades like MS-DOS emulators or hardware accelerators.

There's even a "switch" option that lets you return to your older TOS at any time. And the low price of \$139 includes the official Atari ROM chips!

Step into the future of Atari computing — order your TEC today!

**CodeHead**  
**TECHNOLOGIES**

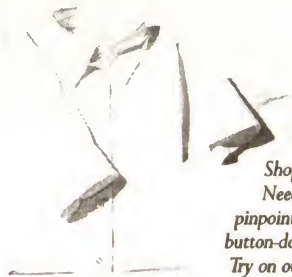
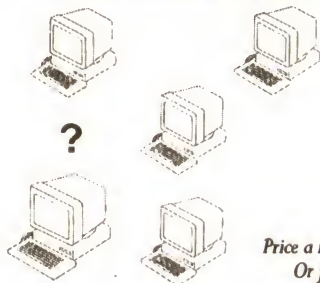


PO Box 74090 LA, CA 90004 213-386-5735 Fax 213-386-5789

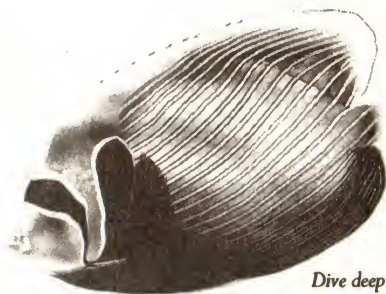
TOS 2.06



Find out why your PC won't talk to your LAN. And what you can do about it.



Shop. But don't drop.  
Need a 100% cotton  
pinpoint oxford shirt with  
button-down collar? In ecru?  
Try on our Electronic Mall.®



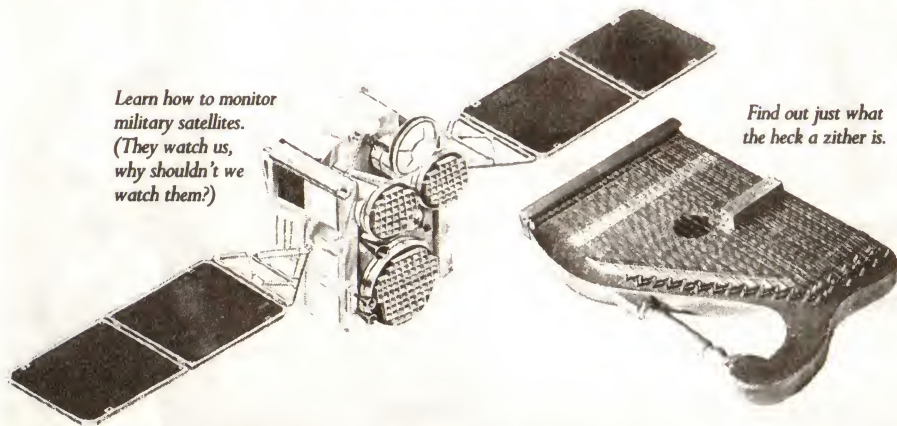
Dive deep  
into aquarium lore.  
Like whether a  
canister or protein  
filter is better  
for a 110-gallon  
salt-water tank.

Price a new Mustang.  
Or just learn  
everything about it.

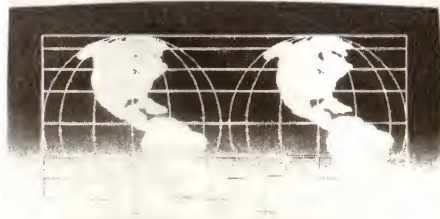


# Finally, a computer information service you can't outgrow. No matter how hard you try.

Learn how to monitor  
military satellites.  
(They watch us,  
why shouldn't we  
watch them?)



Find out just what  
the heck a zither is.



Talk to twice as many people about  
parallel universes.

No matter what you're into, you can get more out of CompuServe.

You can range widely over a list of services that will help you, entertain you, teach you, and challenge you. Or delve deeply into your favorite topics, learning (or even teaching) more, meeting experts, and making friends with people who share your interests.

CompuServe lets you do everything from keeping in touch with our communication services, to getting advice from online hardware and software experts. It's the one computer information service you won't outgrow.

But you will have a good time trying.

For a low one-time membership fee and \$7.95 a month, you can use our most popular services as often as you like: news, sports, weather, shopping, reference materials, our electronic mail service of up to 60 messages a month, and more. Plus, there's a whole universe of other, extended options available at nominal additional charges. Your first month on CompuServe will be free, and we'll give you a \$25 usage credit to explore our extended services.

To buy a CompuServe Membership Kit, see your computer dealer. For more information, or to order direct, call 800 848-8199 (614 457-0802 for international inquiries).

## CompuServe®

The information service you won't outgrow.



# Handheld TOS?

## Portfolio by Atari for Atarians

Donald A. Thomas, Jr.

One of the most popular features of Atari Computers' products is the ease of use. From the instant they are switched on, users find the operating system to be as compatible to their needs as a pond is to ducklings. But when designers of the Portfolio handheld computer went designing, they opted for a non-graphics operating system and installed an enhanced emulation of DOS 2.11.

The reasons for PC DOS are multifaceted. One is that a 256K ROM and 240x64 resolution screen is hardly adequate for state-of-the-art TOS (Atari's operating system) with GEM. Another is that it may not be practical to require a mouse in order to drive a computer which is not much larger than a video cassette tape. The reason for DOS 2.11 is to provide essentials, while leaving room for enhancements and the five built-in applications.

The enhancements to the DOS 2.11 emulation of DOS deal with battery conservation and, more importantly, a menu system. Having a built-in menuing system means software can

be, and is, written to offer commands and options by "point and click" operations. To accentuate this, Atari provides File Manager with every Portfolio. File Manager is a RAM-based program that allows DOS options through this menu system. Files may be copied or deleted and programs may be activated with this system.





## Port Connection

It is easy to resent the DOS-based Portfolio after experiencing the benefits of the popular Atari systems. What may not be immediately clear is how compatible the Portfolio is to TOS.

Actually, any DOS-based clone is compatible to Atari desktop computers. For instance, run WordPerfect on a DOS-based PC, save a document to a 3.5" diskette, move the disk to an Atari TOS system and the Atari's version of WordPerfect will read the document just fine. ASCII files are 100% compatible between systems also. Spreadsheets on the Atari ST/TT support Lotus 1-2-3 files and many ST/TT databases can import files directly from popular IBM packages. This universal compatibility of many file types is how major on line services such as CompuServe and GENie thrive...how all kinds of different computer systems may use the same service.

Most knowledgeable Atari TOS users will rightly argue that it makes a lot of sense to not buy the IBM—to pay less and get a lot more with an Atari desktop computer system. This same Atari philosophy can be extended to apply to the Portfolio. The Portfolio is value priced (less than \$300). It may be used with an "anti-DOS" menu system called "File Manager." It has five useful software applications built-in, and every file may be exchanged with an Atari TOS system.

To transfer files with an Atari desktop computer (ST/MEGA/STE/TT), the user needs to have a Serial Interface (\$79.95 MSRP) for the Portfolio. It easily snaps into an expansion bus on the right side of the Portfolio and provides an industry standard 9-pin RS-232 serial port.

From that port, a null-modem serial cable is required to make a connection directly to the desktop computer's industry standard serial port. Most electronics and computer stores sell the RS-232 cable and null-modem adaptor. The connection allows the two computers to "think" they are connected via modem over the phone lines.

Once connected, Xmodem file transfers can take place using communications software on both computers. The user prepares an Xmodem "upload" on one computer and an Xmodem "download" on the other to initiate the transfer. Popular communications programs are Flash, STalker or Interlink for the desktop TOS machine and Xterm2 or ACOM for the Portfolio.

It does require a little set-up to perform the first file transfer between a Portfolio and an Atari desktop computer, but it is a lot like riding a bike—once you learn, it's easy to do over and over. There are commercial packages available to assist novices to accomplish this with least aggravation. One example is "Transport" by Artisan Software.

Now that we have established that the Portfolio is file compatible with Atari desktop PCs, we may see a greater value in what the Portfolio has to offer. From daily schedule planning to memos, reports and

database management, the Portfolio offers a powerful punch within a package weighing less than one pound. With the same Serial Interface required for file transfers, Atarians can link with any Hayes-compatible modem and remain in touch with the world even while on the road.

Other Portfolio accessories include a Smart Parallel Interface which enables direct printing access. Desktop DOS users may also use the Parallel Interface as an additional way to transfer files. Memory Cards are available for the Portfolio which behave exactly as floppy diskettes do for desktops. Most users acquire and only need one or two Memory Cards and occasionally back-up critical data to their larger desktop system. For those who want the added storage, there are even hard drives available that connect to the Portfolio via the Parallel Interface.

There are numerous third party supporters of the Portfolio, and Atari has introduced several software titles, too. Popular titles include PowerBASIC, Instant Speller, Chess, Physician's Desk Reference II, DOS Utilities and more. A complete catalog is available for just \$1 from Atari. Ask for the APB Catalog, Portfolio Marketing Department, Atari Computer Corp., 1196 Borregas Avenue, Sunnyvale, CA 94089-1302.

For 24-hour support of the Portfolio, users are encouraged to join Atari experts and avid users in the Portfolio forums of GENie or CompuServe. There are well over 750 Portfolio files on CompuServe and many are ready to run programs. User contributions of quality public domain and shareware applications are growing fast due to the Portfolio's ease of development.

With PowerBASIC for Portfolio by Atari, users can write program source code on their Atari TOS desktop if they want. Source code is generated using an ASCII text editor, then the code may be transferred to the Portfolio using the Serial Interface for compiling and runtime testing.

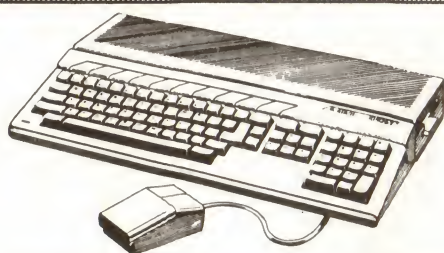
Possibly the nicest feature of the Portfolio is how it widens the Atari marketplace to absorb avid PC users. They have come to enjoy what the Portfolio has to offer and each Portfolio used is a walking advertisement to help inspire that next Atari purchase.

*[About the Author: Don Thomas is the Portfolio Marketing Manager for Atari Corporation. He is also president of Artisan Software, producers of a number of products for the Atari ST and Portfolio computers.]*

### Classic Atari Magazines

ANALOG 1984-87, ANTIC 1983-89, MACE 1982-86  
\$3.50 ea. incl. hndlng & shpg.  
Don Galley, PO 92279, Warren, MI 48092-0279





One MEG STE.....\$379  
 2 MEG STE.....\$479  
 4 Meg STE.... \$579

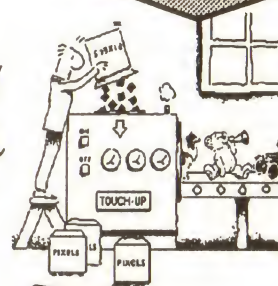
### 520 Discovery Pack

520STE CPU  
 SC1224 Color Monitor  
 Four Games, Paint Program,  
 Basic & Desktop Tour  
**\$675**

### 1040 Family Curriculum

1040 STE CPU  
 SC1224 Color Monitor  
 Five Separate Educational Modules-  
 Each with three programs  
**\$725**

Migraph  
 Scanner w/  
 Ez-Draw &  
 Touch-up  
**\$249.95**



## MEGA MANIA

Get A **FREE**  
 SC1224 Color  
 Monitor With the  
 purchase of A  
 MEGA STE 2-4/50

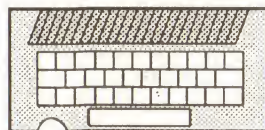


While Supplies Last

Mega STE 1...\$749  
 Mega STE 2/50...\$1099  
 Mega STE 4/50...\$1199

Supra 52 MEG Hard Drive .....\$449  
 Supra 105 MEG Hard Drive.....\$699  
 SupraDrive 44 Removable.....\$699  
 Beetle Mouse.....\$39.95  
 Golden Image w/ Delux Paint.....\$59.95  
 Tri Pack (Deja Vu, Shadowgate &  
 Uninvited).....\$19.95

1-800-326-2344  
 (303) 493-5565



524 West Laurel #2  
 Ft. Collins, CO  
 80521

**ATARI®**  
 COMPUTER  
 Authorized Dealer

**RUN PC**

T.M.



Prices subject to change.

THE COMPUTER STORE THAT ==RUNS TO YOU!

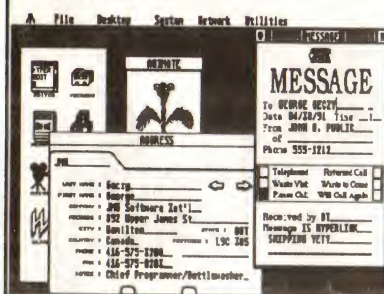


# HyperLINK

## "Application Generator"

**Bringing the Power of Hypertext to your ST!**

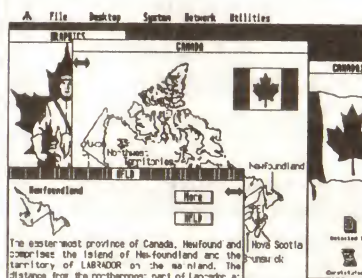
### Example # 4 : Relational DBase



As a simple example of a Relational Database, HyperLINK can be set up to "link" any given field in a database with a field in another data-

base. In the Message HAP for instance, there is a link to the Address HAP and HyperLINK performs a search for a matching record.

### Example # 1 : The Canada HAP



One of the most popular, and common uses for any Multi Media product is Education. The Canada HAP illustrated here, is an example of

how Text, Data, Graphics, and Sound can be combined for an interactive educational tool. eg. Click on a Province get a text file on that Province etc.

**Watch for more example HAPs (HyperLINK Applications) to further show the unlimited power and flexibility of HyperLINK !!!**

# \$ 149.00

Price in U.S. Dollars

**With HyperLINK you can create your own Applications quickly and easily !!!**

HyperLINK requires 1Meg RAM  
Comes on two Dbl Sided Disks.

Plus \$5 Shipping in N.America.  
Overseas orders add \$20 for shipping.

**JMG Software International, Inc**  
892 Upper James Street  
Hamilton, Ontario L9C 3A5  
**(416) 575-3201**



## MIDI in the Midst

Before jumping back into my Hybrid Arts profile, I must report, briefly, on a recent event:

At the Atari Canadian Exposition (ACE '92) held in Toronto, Ontario, on April 4th and 5th, our users group, ASTMUM, manned booth #316. We gave advice on the art of making music, conducted MIDI demos and displayed the productive output (sheet music, cassettes and CDs) of our members.

The most popular activity, at our booth, was showing beginners how they could get started in MIDI on a shoestring—with excellent results! Most gratifying was meeting some terrific techies and musicians who came out of the woodwork for this show. Many were interested in our chosen method for expanding older STs RAM to 2.5 or 4 megabytes, so we kept popping our computer open to show 'em!

I managed to get away from the booth long enough to buy CodeHead's newly released TOS Extension Card. Since videotaping a "New TOS" seminar at the WAACE show last October, I've taken a great interest in this topic. I'll install it, run tests, and probably do an article about it. Readers in the Northeast who are reluctant to solder in or handle these sensitive devices could contact me about installing their TOS Extension kits (and our preferred RAM expansions!) for them.

About 10 of our members made the trip from Montreal; they fanned out and garnered a lot of goodies and information.

Visitors kind enough to leave their addresses at our booth will receive follow up letters. In fact, any AIM reader interested in our group's activities should write (ASTMUM's address can be found in the Users' Group list at the back of this issue). Above all, it was people's open appreciation that made it worthwhile for me.



**Kest Carter-Morgan**  
**ASTMUM**



While the event is fresh in our minds, we'd like to post our heartfelt thanks to Atari, the Toronto Atari Federation, the show's organizers and volunteers, other exhibitors, and the Skyline Hotel for putting together and running such a fine exhibition!

Now, let's get back to Hybrid Arts.

The significance of direct-to-hard-disk, digital recording is lost on many non-musicians. Some musicians aren't even aware of the impact this relatively new technique is having on their industry.

Traditional, analog, audio tape recording, when done well, has delivered excellent results. It's when you have to overlay or "bounce" multiple tracks, that the "noise floor" begins to rise.

Shuttling tapes back and forth, snipping out bits of dialogue, trying to fix a sour note after the artist has left the scene, trying to correct timing errors—all these are aspects of the engineer/editor/producer's craft. These chores require a gutsy mix of patience, skill, acute perception, nerve and, yes, *luck*. That's why traditional engineers' eyes pop (and jaws drop) when they see how easily those tedious, difficult (sometimes even impossible) tasks are dealt with in the digital domain.

Suddenly, you have *random access*! No waiting! You can retire your splicing block. To a greater extent, you can construct things without having to consider the penalties for your actions (e.g., noise buildup). However, along with this alleviation of tedium comes something that is paralytic for some: *unlimited choice*! Suddenly, the world becomes your sonic oyster.

How Hybrid Arts innovates in cost effective technology would be wasted if they didn't keep track of the user interface. In this regard, they have done well, by consulting users as their Digital Master system evolved.

Although I will, near the end of this segment, convey information on their new, 4-channel version, allow me to finish describing the demo of the 2-channel system which I began in the May issue.

If you haven't seen it (or pictures of it), the system is contained in a hefty-looking box, resting on, and apparently blocking, the entire length of a STE's ventilating grid. The box extends, and is supported, a considerable distance behind the computer.

Closer inspection reveals two analog and two digital inputs in back, with one or more fans, and an opening in the bottom to prevent heat from the ST's power supply from piling up. Almost any 520 or 1040 ST will do, as long it has been expanded to four megabytes (needed when accessing the EDIT page).

The massive, color-matched case (mated to the computer) can accommodate most smaller hard drives (around 120 megs). Larger banks of drives must be housed externally, however. The visual impression is formidable, but functional.

A strap-like, flat cable extends down from the left side to connect at the ST's cartridge port and, of course, the inevitable connection is made to the DMA

port. These connections explain the need for the unit's intimacy with the computer; they must be kept as short as possible. However, if you want to extend the distance between units, ask Hybrid Arts about how they've dealt with this.

A suite of programs comes with the system:

The Digital Recorder/Editor (DRE), for recording long sound files (limited by the capacity of your hard drive(s))

The EDIT program, for "microscopic" editing, retuning or reversing of sounds (limited by capacity of the computer's RAM)

The CUE LIST, an edit decision list that runs concurrently with SMPTE sync. in order to trigger events (on the hard drive) at selected SMPTE numbers (for video, post-production use)

The MIDI program, for MIDI control of events on the hard drive

Due to space constraints, I won't cover all utilities and functions; I'll try to keep it neat.

Now, envision if you will, that we're immersed in that demo with Jeff Naideau, Sales Manager for Hybrid Arts. He has just shown how items on the playlist can also be played via MIDI; you can set them up to be triggered, by notes of your choice, from your keyboard or sequencer.

Moving on to the EDIT page, he displays (from left to right) the varying envelope of a section of music. This resembles an enlargement of an optical, movie soundtrack. A vertical, hairline cursor travels across the envelope, during PLAY, giving your exact location in the piece.

You left-click and drag the mouse to create a "range" (Hybrid Arts' expression for a working increment). This could be an entire song, a musical phrase, or a tiny blip of sound; you define it. Then, you do things to the range: cut it, copy it to somewhere else, retune it, etc. To visually emphasize details, you can zoom in on, or enlarge, a range, and if you've saved a particular view of it, you can snap back to it any time.

When it comes to precise editing, the system can be made to behave in a manner similar to an open reel, analog tape deck, which, by hand-rocking the reels, back and forth, in PLAY/PAUSE mode, used to reveal where (on or near the beat) to mark the tape with a grease pencil for splicing.

Digital Master emulates this by employing an optional, outboard controller—the J.L. Cooper CS-1 (about \$500 list). It has a rotary knob, just large enough to effectively "scrub" a phrase or beat (e.g., a snare drum) *Paiowww - wwwoiaP*, back and forth, until your ears, and the on-screen cursor, confirm the desired spot. Very gratifying!

The CS-1 is great, but when I saw Jeff Naideau do this same operation, easily, with the mouse, I started laughing so hard I almost dropped the camera.

Where this system really shines is in pitch and time correction. Jeff played an example in which a repeated



guitar figure retained its pitch, while the backing rhythm was artificially and steadily increased. Vocals were retuned with ease. Even during extreme examples, and when doing the previously mentioned "scrub" edits, the sound was natural and free from aliasing or spurious noise.

I won't elaborate on the digital filtering functions at this time. It's also important to note that the lack of programmable equalization doesn't seem to hamper people in getting work done.

I'd say that if I wasn't obliged to complete other, important projects, I'd drop everything, now, and get involved with this system, particularly the new, EX version.

As promised, here is the latest information gleaned from a telephone conversation with Brad Eisenhower of Hybrid Arts:

The 4-channel, 16 virtual track, "EX" version, though delayed, should be available in June. You can also order the software update and a rack-mount unit to add the two extra channels to the existing system.

Retuning and sample rate conversion (on both versions) is no longer limited by the computer's RAM. What used to be done with the EDIT program can now be done (within the Digital Recorder/Editor program) to an entire song or hard disk file (in cents, half-steps and octaves).

Advantages, in the software, allow you to work more organically: writing elaborate crossfades to the hard drive; doing "destructive" cuts to a file and not losing track of your important markers; being able to mark, cut and paste between many different windows while retaining the thread of your intent.

The number of sound files you can open is no longer limited to eight—it's unlimited! The new software works on the large Monitorm and Atari monitors, providing a much bigger work surface on which to manipulate files. There have been improvements in how the system locks to SMPTE; moreover, in how it "chase-locks" to SMPTE.

CHAOS, Hybrid Arts' proprietary multitasking operating system, allowing true, simultaneous operations, will be released with their new EX version. Brad Eisenhower wasn't apprised of the degree that this involved Atari's new multitasking TOS (Multi-TOS).

A small line driver (buffer) box now plugs into the cartridge port, enabling the new EX version to be placed up to 10 feet away from the computer.

Additionally, they've come out with a DMA to SCSI adapter which enables the new system to use standard SCSI drives directly.

For some reason, the favored "Quantum" 105 Meg drive, combined with the ICD host adapter, conflicts with the digital recording system. If, when you're at the point of placing your order, no cure has been announced, then you'd be safer sticking with a Fujitsu, Maxtor, Hitachi or other drive, proven in this application. Avoid the Connor drives, too, they say.

They are enthusiastic about their new Sample

Playback Module. It offers 12 audio outputs; 16-bit, 24 dynamically allocated voices (at 44.1 kHz); effective interaction with the Digital Master, SMPTE timecode and S-MIDI specs.; and one to 16 Megs of SIMM RAM space. It can load samples through SCSI and conforms to the "Sound Designer" format.

Also announced is their new ST-MAC CD-ROM software which, with the above, reads and accesses all Macintosh sound libraries for the Atari ST.

Stephan Daystrom is writing an update of Smpte-Track Gold, which should also be ready by press time. Not having heard from him, yet, I've decided to delay my sequencer segment in this series of articles, until the multitasking details get clarified. I'll try to put together a Smpte Primer for beginners, as well.

Note: The lowest selectable sampling rate figure, given in Atari Explorer, was technically correct. They were just repeating information given in Hybrid Arts' brochure. You can obtain that rate from the EDIT page. However, in the DRE program, the lowest selectable rate on its menu is 22 kHz. It is not common practice to use such low sampling rates when making a high quality, wide bandwidth recording.

Now, which breakfast cereal should I choose?

Until next time...

[About the Author: Kest Carter-Morgan is an audio/video recording engineer, electronic prototype designer and computer repair technician specializing in ST-related projects. He is one of the founding members of Atari St/Mega Users (Montreal).]

# HAYAI

*For hard disk to hard disk backup and defragmentation  
Copy verification with a unique compare function*

*Graphic Mouse/Keyboard Gem Interface  
Fastest possible data transfer rates*

**UP TO 30 MEGABYTES/MINUTES**

*Guaranteed to be error free  
Preserves essential fat information  
Traps system hardware defects  
Defrags as it copies  
Single SyQuest cartridge to cartridge copy  
Color and Monochrome versions*

## REDIRECT ACCESSORY

*Redirects screen directed text output from most  
programs to any combination of Screen, Printer  
and/or File. Color and Monochrome versions.*

**REDIRECT ACCESSORY... \$19.95**

**HAYAI..... \$79.95**

**Check or Money Order**

*Machine Specific Software  
278-1 San Tomas Aquino Road  
Campbell, California 95008  
(408)370-9039*

Add 3.00 for S&H, plus 8.25% sales tax for California residents

Read only demo disks...\$9.95



# B&C COMPUTERVERSIONS

2730 Scott Boulevard - Santa Clara, CA 95050

Store Hours Tue - Fri 10am - 6pm  
Sat - 10am - 5pm Closed Sun - Mon  
**408-986-9960**

## NEW!! ATARI STE NEW!!

4096 Colors, Blitter, PCM stereo, Simm Ram, Rainbow Tos

### 520/1040STE

512K \$375 2 meg \$475  
1 meg \$425 4 meg \$555

Call for pricing on monitors & software.  
We carry the full ATARI line.

### MEGA STE - CALL TT030 - CALL

1.44 MEG

**HARD DRIVE KITS:**  
**MEGA STE \$150 - TT030 \$175**

## SIERRA TITLES FOR THE ATARI ST

limited  
quantities!

**\$9.95**  
EACH

POLICE QUEST I  
POLICE QUEST II  
CAMELOT  
MANHUNTER II  
BLACK CAULDRON  
KINGS QUEST I  
KINGS QUEST III  
KINGS QUEST IV  
COLONELS BEQUEST  
CODENAME: ICEMAN

SPACE QUEST I  
SPACE QUEST II  
SPACE QUEST III  
LEISURE SUIT LARRY I  
LEISURE SUIT LARRY II  
LEISURE SUIT LARRY III  
HOYLE BOOK OF GAMES I  
HOYLE BOOK OF GAMES II  
MIXED UP MOTHER GOOSE

## RECONDITIONED MERCHANDISE

400 computer 16K/BASIC/Pac-Man  
**\$24.95**

800 Computer 48K/BASIC/Star Raiders  
**\$59.95**

600XL computer with 16K **\$39.95**

600XL computer with 64 K **\$59.95**

800XL computer with 64K **\$79.95**

1050 Disk Drive - dual density **\$135**

Atari Trackball **\$4.95**

Numeric Keypad with Handler **\$4.95**

90 day warranty

## SPECIAL VALUES FOR ATARI 800/XL/XE

Atarilab Starter Kit and Atarilab  
Light Module both for **\$14.95**

LOGO Manual set (2books) and  
LOGO cartridge - both for **\$9.95**

Visicalc Spreadsheet **\$29.95**

AtariWriter with Printer driver both  
for only **\$29.95**

Atariwriter + with spellchecker  
**\$29.95**

DOS 2.5 & Manual **\$4.95**

DOS XE & Manual **\$7.95**

Pilot Language now only **\$14.95**

Atari Lightgun with Bug Hunt  
and Barnyard Blaster **\$44.95**

410 Program recorder with States  
& Capitals **\$14.95**

SX Express software for the  
SX212 modem **\$9.95**

Atari Trakball **\$7.95**

Atari Lightpen **\$14.95**

Paddle Controllers  
**\$4.95**

Remote Control  
(with power pack)  
Joysticks (2) **\$19.95**

Wico Black Max  
Joystick **\$4.95**

## ATARI LYNX!

The complete entertainment  
system includes the Lynx game  
unit, California Games, Multiplayer  
cable, carrying pouch and AC  
power adapter.

**\$149.95**

CYBERBALL..... 35.95  
AWESOME GOLF ..... 31.50  
XYBOTS..... 35.95  
TOKI ..... 35.95  
CRYSTAL MINE II ..... 35.95  
SUPERSWEEK ..... 35.95  
6 D-CELL BATTERY PACK 14.95

We carry a full assortment of games,  
large and small carry cases, car power  
adapter, sun visors, multiplayer cable,  
and PCB power connector.



## JRI UPGRADES

For the 520/1040fm/MEGA 2/4

RAM+ 1-4 meg **\$99.95**

4096 w/shifter gives you 4096 colors **\$75**

Push-on Floating Point math coprocessor **\$175**

(with mega bus expansion **\$200**)

Genlock S-VHS for Mega 2/4 **\$550**



## ATARI ST ACCESSORIES

Best Trackball **\$59.95**

Alfa Auto-Fire Trackball  
**\$89.95**

Alfa Optical Mouse

300 DPI **\$69.95**

Alfa Mechanical Mouse 280

DPI **\$49.95**

### MULTI-MEDIA DISK TRAY

Holds combinations of 3.5" and 5.25"  
disks, CD Roms, Tapes and Syquest  
Carts ... **\$7.95**

Supercharger IBM Emulator

**\$425**

Terminal VT-100 emulator **\$9.95**

## PORTFOLIO

**HAND HELD COMPUTER**  
**\$249 with 64 CARD!**

Get the PC Card Drive for **HALF**  
PRICE with the purchase of a  
PORTFOLIO

PARALLEL INTERFACE 49.95  
SERIAL INTERFACE 79.95  
32K MEMORY CARD 69.95  
64K MEMORY CARD 99.95  
128K MEMORY CARD 169.95  
AC POWER ADAPTER 9.95  
PC CARD DRIVE 99.95  
PORTFOLIO CHESS 44.95  
INSTANT SPELLER 35.95  
20 MEG HARD DRIVE 399.00

Call for software titles and prices

## NEW ATARI 8-BIT SYSTEMS!!!

130XE COMPUTER 128K **\$175**

65XE COMPUTER 64K **\$125**

XEGM GAME MACHINE 64K **\$139**

(WITH LIGHTGUN & BUGHUNT)

XF551 DISK DRIVE **\$199**

1010 PROGRAM RECORDER **\$29.95**

STAR NX-1001 GRAPHICS PRINTER **\$159**

(REQUIRES INTERFACE FOR 8-BIT)

MPP-1150 PRINTER INTERFACE **\$49.95**

850 INTERFACE **\$74.95**

## PRINTER SPECIALS!!

For the ATARI 8-BIT  
ATARI 820 40 Columns  
**\$14.95**

ATARI 1020 COLOR  
PLOTTER - 40 COLUMN  
**\$19.95**

ATARI XDM121

Letter Quality Daisywheel

80 Columns **\$49.95**

With Sheet Feeder **\$75.00**

## New Low Prices!

### BULK DISKETTES

10 per package

Some contain old software

3-1/2" ..... **\$5.00**

5-1/4" (for 810/1050):

Qty 10 ..... **\$2.95**

Qty 100 ..... **\$20.00**

Qty 1000 ..... **\$100**

## 600XL UPGRADE

Give your 600XL  
more memory with  
ATARI'S plug-in 64k  
ram module. NO  
soldering!!

**\$19.95**

**SHIPPING INFORMATION** - Prices do not include shipping and handling. Add \$6.00 for small items (\$10.00 Min. for Canada). Add \$10.00 for disk drive. Add \$4.00 for C.O.D. Calif. res. include 8.25% sales tax. Mastercard and Visa accepted if your telephone is listed in your local phone directory. Orders may be pre-paid with money order, cashier check, or personal check. Personal checks are held for three weeks. C.O.D orders are shipped via UPS and must be paid with cash, cashier check or money order. International and APO orders must be pre-paid with cashier check or money order. \$20.00 minimum on all orders.

To receive our catalogue, please send \$1.50 in coin or stamp to cover the cost of mailing.  
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE - NO REFUNDS - ALL SALES ARE FINAL



# Pictures to Text OCR Comes to the Atari

[Review copy of Migraph OCR 1.05 loaned by IB Computers, 9244 SW Beaverton, Hillsdale Hwy., Beaverton, OR]

What does OCR from Migraph do? OCR—Optical Character Recognition—has one purpose and that is to change "text" in an IMG or TIFF monochrome scanned image into a page of text. Currently the only output available is ASCII text, but almost every wordprocessor imports this type of file. How does it work? It works very well!

The manual isn't kidding when it tells you to disable all auto programs and accessory programs. This program does use all the memory it can get. (Also, on general principles, don't set the Fastload bit, telling the program to skip fast loading. This is something I routinely do with a program that uses all available memory.)

The requirements for using this program are:

Some way of getting a picture of the page into the computer in IMG or TIFF format. This usually means, you need some type of a scanner—flatbed, sheet-feed or hand.

Two or more megabytes of memory—the more the better. If you don't have enough memory for the document, OCR will use "Hard Drive Caching" to store the extra data. Using this virtual memory feature is much slower than using existing RAM.

A hard disk

Nearly \$300 for the program

Bill Pike  
PAC

## Who Needs OCR?

You are probably asking yourself who needs this program? People doing extensive DTP work need this program. OCR allows them to scan in text from *any* hardcopy and create a disk file that can then be edited, spell and grammar checked, popped into a DTP package and output to a printer.

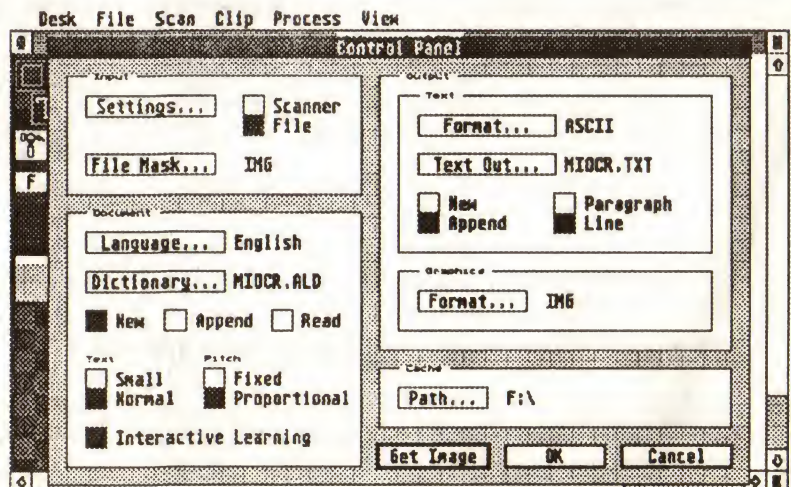
What if you're a poor, forgetful person writing the Great American Novel. You didn't make floppy disk backups of the text you saved to hard disk, and the hard disk crashes. Oh, @%%%#@! Now you have to retype the entire thing? If you have hardcopy and Migraph OCR, though, you are able to scan the text back in and recreate the original files with a little effort—a lot less effort than retyping the original.

Anyone who needs to transfer something from a written page to a computer text file needs Migraph OCR.

## Font Recognition

OCR already recognizes Artisan, Bookman, Brougham, Carroll Pica, Courier, Courier Italic, Delegate, Elite Modern, Helvetica, Herald Elite, Letter Gothic, Lori, Lubalin, OCRB, Pica, Prestige Elite, Prestige Italic, Prestige Pica, Times, Titan and Title typefaces.

If the document you are scanning contains a font other than a pre-recognized one, you can rename the .ALD file (from the control panel)





and OCR creates a dictionary of the new typeface. You can save this new dictionary for use the next time you scan a similar document.

OCR also creates a dictionary for letters it doesn't understand within these typefaces; this dictionary is overwritten the next time you use OCR if you don't rename it.

I strongly suggest you name your dictionaries by the type of document you work with rather than by typeface. For example, name them ST-Informer, Computer Shopper and Newsweek rather than Times, Helvetica and so on. The same typefaces in different publications aren't always consistent enough to allow full recognition of all characters from one publication to another. The dictionaries are around 100K long.

## Scanner Support

Let's get down to the nuts and bolts. Migraph's OCR takes direct input from any of the following hand scanners: Migraph (you knew that it would support that one didn't you?), AlfaData, and Golden Image. OCR also accepts monochrome IMG and TIFF format files, for those that have full page or flatbed scanners.

There is a problem in using a hand scanner image—the scan is only four or so inches wide. If you are trying to scan large areas of text, this is a problem. Needless to say, Migraph has a cure for that. They recommend scanning directly into the OCR program and processing each scan independently. OCR can then construct a text file for the first scan and append the later scans to it. There is also a scanning frame available to facilitate scanning.

If you input from a flatbed or other full page scanner, you must first save each page as a IMG or TIFF file. You then load the file into OCR.

## Text vs. Graphics

Once you have an image in the program, you are almost ready to start converting it to text. First, you need to define what is text (or what part of the text you want) and what is graphics (if you want to save out the graphic as a file). This helps the program to keep things on track.

If text has been "flowed" around graphics, you can use a polygon to define the text area—you aren't stuck with defining only a rectangular area. If the text is broken up all over the page, you can define a number of text areas and tell OCR what order in which to process them.

If your scanned image is rotated a little off center, OCR can perform very minor rotation of the image so imperfections in the scan are taken into account. If too much rotation is necessary, you will need to rescan the document. Also, OCR will perform major rotations in 90 degree increments you can even scan something sideways or upside down.

You can also scan white text on a dark background. OCR doesn't care and handles it just fine. Sometimes it may be advantageous to work from a black/white in-

verted image; the program inverts images on request. Text from 10 to 18 point sizes are accommodated directly. Letters of larger sizes also work OK, and scans of smaller text is taken into account by setting the smaller text option. I have found that a 150-200 DPI scan is adequate for 12-18 point text and 300 DPI is good for 10-15 point text. It is recommended that 400 DPI be used for text smaller than 10 point, though I have been able to use 300 DPI for 8 point type without too much trouble.

Once you have scanned the hard copy, loaded the image into OCR, rotated the image as needed, defined the text and graphics areas (you only need to define the text areas unless you also wish to output the graphics), set the output file for the dictionary (if the typeface isn't one already recognized by OCR), and set the text output file. By the way, if you forget any of these steps, OCR will muddle through on its own and pretty much get things right (idiot proofing).

## Tests and Checks

For the actual conversion to text, OCR checks the typeface against its dictionary, then runs the text through 25-100 or so linguistic tests, as needed. If it doesn't recognize the typeface, OCR asks for help from you.

OCR then checks for English, German, Dutch and French letter combinations, according to your settings (you can only have one linguistic base at a time active, but you can have all the various bases on the drive). These checks have to do with the words, letters and types of letters OCR is expecting to find. OCR also does a very good job at differentiating between 1 and l, 0 and O, and such—one of the things OCR does very well is keeps numbers separated from letters. OCR can even be trained to recognize Handwriting if the letters are consistent!

## Problem Scans

One thing that causes OCR to have fits is printed copy where segments of the letters are not connected, such as a xerox of a xerox or printouts that are too light and the letters are fragmented. This is also a problem if the scan is too dark and letters are not separated.

This problem is due to the method of character recognition OCR uses, that of using a mathematical description of the letters rather than a bitmap. The mathematical method picks up letters that bitmapping chokes on, however, it needs the complete form of the letter to work properly. The point of this whole discourse is to make sure you have a good printed image to scan from and that you do a good scan.

A way around this problem is during the "Interactive Learning Stage." When OCR sees letters (usually a,u,o,b,d), most fonts have thin and thick sections to these letters. These thin sections will sometimes be broken, and where lines are broken OCR will try to make letters out of the parts it sees. There is no way of

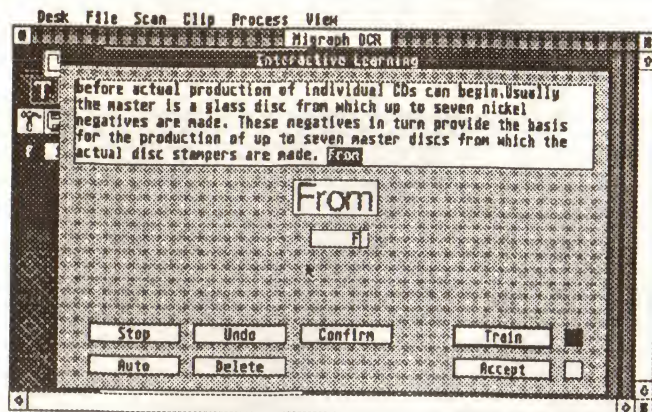


combining these parts back together in OCR.

In the Interactive Learning Stage, you can define the most characteristic portion of the letter as the letter. Then, you can either delete the remaining "meaningless" sections or let the program do its thing. Once the text file is created, do a spell check to correct the errors. This will take care of 99.999% of those extraneous letter sections.

## Installation

The installation of the program couldn't be simpler. You put the first disk in the floppy drive and click on the Install program. Then, you pick the hard drive par-



tion on which you want OCR installed and what language to use as a default. The Install program does all the rest of the work. The Install program also gets deleted at this time, so only install from work disks (the work disks should be full disk copies, not file copies), not your original disks or backups.

## Summary

I am using a four meg 520ST, a Canon page scanner and a hard drive. I would suggest a monochrome monitor (OCR also works in medium resolution if you don't have a monochrome monitor). It just looks nicer in monochrome to me.

The only problems I have had are ones of my own impatience while in the learning phase of the program, pushing the button too fast.

Early versions of OCR (prior to 1.05) had a bug involving the paragraph setting for output. If you have an older version, Migraph automatically ships the upgrade to version 1.05 when you send in your registration card. Future versions of the program will incorporate direct input support for various full page and flatbed scanners.

The program is quite goof-proof and very well done. The manual is small, but everything is covered in it. If you have need for Optical Character Recognition, I strongly suggest the purchase of Migraph's OCR. The program is simply excellent.

You've listened  
to your MIDI  
equipment. Is it  
listening to you?

*CK: MIDI! 2.0*

**Grand  
Mesa**  
RESEARCH

*The Achiever's Solution.*

For a free product guide, write to:  
Grand Mesa Research, PO Box 266, Eads, CO 81036-0266, or  
call our message line at 719 438 5419.  
©1992 Grand Mesa Research, Ltd. All rights reserved.

Version 1.37 Now Shipping  
Affordably Priced -  
\$94.95+S/H

**Silhouette**  
Bit-Image & Vector Graphics  
Drawing Program with Auto-tracing

Silhouette offers: Auto-Tracing, Beziers, B-Splines,  
Advanced Duplication, Drawing Tools, Shaping and  
Editing Functions. GEM, IMG, EPS, DXF formats. FSM  
and ST or TT High Resolution.

*From the desk of the developer: Update Alert!*

"GEnie and Compuserve registered users receive V1.37 as a free update. V1.37 offers newly advanced bezier curve editing functions, printout directly from Silhouette, and shipping with the new FONT-GDOS! Arriving very soon as updates: CVG output, Illustrator EPS, TT Medium Rez (640x480 duochrome)."

**SPECIAL OFFER TO AIM MAGAZINE READERS!**

Cut out and send this ad with your order and receive free shipping; a savings of \$5 for U.S. orders, \$7 to Canadians! Offer good until June 1, 1992.

We Accept:



8-5PM, MST, M-Sa  
(303)666-7754

**MaxWell CPU**

2124 W. Centennial Dr.  
Louisville, CO 80027



# TOAD

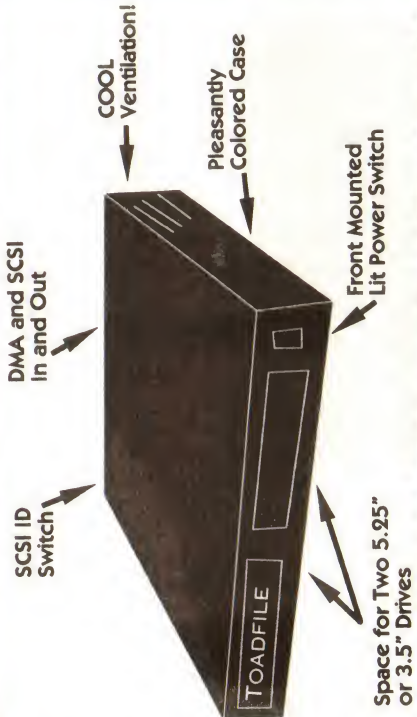


# CAFE

*Featuring Authentic Amphibian Cuisine at Reasonable Prices*

## Served in the Case of Your Choice.

*House Special!*



### REMOVABLES & COMBINATIONS

|                                 |        |
|---------------------------------|--------|
| Toadfile 44 Plus Removable      | \$679  |
| Toadfile 91 Plus Removable      | \$829  |
| Toadfile 88 Plus Removable      | \$1129 |
| Toadfile 44 Magnum (3 Carts)    | \$819  |
| Toadfile 96 Plus (44 & 52)      | \$929  |
| Toadfile 149 Plus (44 & 105)    | \$1029 |
| Toadfile 91/52 Plus (88 & 52)   | \$1079 |
| Toadfile 91/105 Plus (88 & 105) | \$1179 |
| Toadfile 91/44 Plus (88 & 44)   | \$1319 |

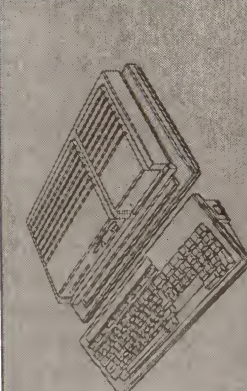
### TOAD'S FIXED DRIVE DINNERS

|                             |        |
|-----------------------------|--------|
| Toad 52MB Quantum 12ms      | \$489  |
| Toad 80MB Quantum 12ms      | \$549  |
| Toad 105MB Quantum 12ms     | \$589  |
| Toad 680MB Hitachi 12ms     | \$1499 |
| Toad Shoebox 50MB 28ms      | \$399  |
| Little-Toad-20MB 24ms Drive | \$299  |

### FRESHLY CAUGHT

We guarantee our **Toadfile Drives** to be the best available anywhere. Our chefs hand-assemble and test every drive before it leaves the kitchen, which assures you of the finest quality. All our drives are fresh from the market, so your warranty's not stale and rancid. And not only are they tasty, but they're a pleasure to look at as well. In our new **ST grey** case, with custom painting and labeling, your drive will beautifully complement your meal. And don't forget our special SCSI switch - great for the active computer user! Order a **Toad Drive** Today!

- **FAST & FREE Shipping**
- **Toad Or Shoebox Case**



### Mega STE Monitor Deals!

We're hereby announcing a deal that will make your teeth sweat. Now, with the purchase of any Mega STE, in any memory or hard disk configuration, you can get a color or monochrome monitor at a substantial discount. And not only that, prices on the Megs have dropped anyway, so you can get a complete Mega STE system, with hard drive and monitor for the price you probably paid for your 1040ST system! Consider it. To upgrade your existing ST, you might have to spend as much as \$1500 to get comparable RAM upgrades, accelerators, new TOS versions, hard drives, and detachable keyboards. For well under that price, you can get a brand new Mega STE, which includes all of those upgrades, not to mention the VME card slot (for expanded video) and AppleTalk compatible network port. And it includes a monitor! Why don't you give your old ST to a friend or family member, or keep it as a spare. Remember, an upgraded ST is never as reliable as a new machine. Isn't it about time you stopped cramming things under the hood and thought about buying a new car? Now you can - without feeling guilty!

### Mega STE Deals!

- Mega STE 1MB RAM \$849
- Mega STE 2MB RAM \$899
- Mega STE 4MB RAM \$989

- **50MB Hard Disk \$100**
- **1.44MB Drive \$139**
- **68881 Coprocessor \$99**
- **2 Year Warranty \$79**

### Monitor Values!

- **SC1435 14" Color Stereo \$339**  
With Any Mega STE \$249
- **SM147 14" Mono \$189**  
With Any Mega STE \$159
- **SC1224 12" Color \$229**  
With Any Mega STE \$159
- **Magnavox 1CM135 Color \$319**  
With Any Mega STE \$259
- **SC1924, SM147, Switch \$449**  
With Any Mega STE \$309
- **SC1435, SM147, Switch \$579**  
With Any Mega STE \$409



We Toads are quite certain that our Mega & Monitor promotion is simply the best Atari Computer value you'll find in all of 1992. That's why we've given it the "Toad's Best of '92" seal of approval!



### SOFT-DRINKS

|                                  |       |
|----------------------------------|-------|
| DC Data Diet                     | \$47  |
| Multidesk Deluxe                 | \$39  |
| MOS Disk Utilities               | \$39  |
| Softlogik PageStream 2.1         | \$179 |
| Calamus v 1.09N                  | \$169 |
| Calamus Outline Art              | \$159 |
| Calamus Font Editor              | \$69  |
| Cal-Assistant Calamus Helper     | \$29  |
| Page Assistant PageStream Helper | \$39  |
| GST First Word Plus              | \$69  |
| PageStream QwikForms             | \$29  |
| Fontverter                       | \$29  |
| Font Designer Plus               | \$34  |
| TAX WIZARD                       | \$189 |
| Multigem (ST Multitasking!)      | \$39  |
| Hyperlink ST                     | \$79  |
| LDW Power Spreadsheet            | \$109 |
| Templicity for LDW Power         | \$28  |
| Phasar 4                         | \$59  |
| Tracker ST                       | \$52  |
| Versasoft DBMAN v 5.2            | \$154 |
| Image Cat                        | \$28  |
| MegaPaint II Professional        | \$169 |
| Avant Vector                     | \$479 |
| Arabesque Professional           | \$129 |
| NeoDesk 3 Replacement Desktop    | \$49  |
| Cardfile 3 Personal Organizer    | \$28  |
| Stalker 3 Terminal Accessory     | \$37  |
| Steno 3 Text Editor Accessory    | \$27  |
| Stealth Terminal Program         | \$34  |
| Deluxe Paint ST                  | \$89  |
| Hotwire Plus (Includes Maxifile) | \$46  |
| Laser C Compiler                 | \$109 |
| Mark Williams C Compiler         | \$99  |
| Lattice C Compiler               | \$189 |
| Silhouette v 1.25                | Call  |
| ICD Cleanup ST                   | \$29  |
| Flash                            | \$19  |
| Newdesk Icon Editor CPX          | \$19  |
| Universal Item Selector III      | \$18  |
| Quick v 3.0                      | \$29  |
| Lexicor Prism Paint              | \$79  |
| Lexicor Chronos 3D               | \$249 |
| Lexicor Drawing Tablet           | \$219 |
| Timeworks Datamanger Pro         | \$89  |
| Timeworks Desktop Publisher II   | \$139 |
| Turner Books 1-3                 | \$14  |
| GFA Basic v 3.5E or 3.6          | \$99  |
| GENUS Font Editor                | \$169 |
| Wordperfect ST                   | \$149 |
| Wordflair II (FSM GDOS)          | \$169 |
| Printmaster Plus (ST & IBM)      | \$39  |

### HARD-DRINKS

|                                 |        |
|---------------------------------|--------|
| Atari 1MB STE 1 Year Warranty   | \$379  |
| Atari 2MB STE 1 Year Warranty   | \$469  |
| Atari 4MB STE 1 Year Warranty   | \$559  |
| Atari 512K STE 1 Year Warranty  | \$339  |
| Atari Stacy 2, 20MB Hard Disk   | \$1499 |
| Atari Stacy 4, 20MB Hard Disk   | \$1649 |
| AT-Speed 16MHz AT-PC Emulator   | \$389  |
| PC-Speed ST/STE XT Emulator     | \$189  |
| Spectre GCR & Mac Roms          | \$499  |
| Spectre GCR                     | \$219  |
| Mac 128K OS ROMS                | \$300  |
| ICD AdSpeed ST                  | \$229  |
| ICD AdSpeed STE                 | \$249  |
| JRI SIMM Board                  | \$109  |
| 1MB, Low Profile, 70ns SIMMS    | \$49   |
| Atari SLM605 Drum               | \$129  |
| Atari SLM605 Laser Printer      | \$1049 |
| Atari SLM605 Toner              | \$29   |
| Atari SLM804 Drum               | \$154  |
| Atari SLM804 Toner              | \$49   |
| Atari ST Book Notebook          | Call   |
| Atari TOS 1.4 6 or 2 Chip Set   | \$59   |
| TOS 2.06 Chips & Disk           | \$59   |
| TOS Extension Card (Standard)   | \$139  |
| TOS Extension Card (Mega/CPU)   | \$149  |
| Installation for Above          | \$39   |
| Atari TT030 Computer Systems    | NOW    |
| Golden Image DSD 720K Drive     | \$139  |
| ICD Advantage Plus Host Adapter | \$99   |
| ICD Advantage Host Adapter      | \$89   |
| Keyskins for 520/1040ST/Mega    | \$21   |
| ST Modem Cable                  | \$12   |
| ST Printer Cable                | \$12   |
| ST-Portfolio Transfer Kit       | \$79   |
| Mega STE/Portfolio Cable        | \$12   |
| SyQuest SQ400 44MB Cartridge    | \$75   |
| SyQuest SQ800 88MB Cartridge    | \$119  |
| Supra 2400                      | \$99   |
| Supra 2400 Plus                 | \$149  |
| Supra 9600 FAX Modem            | \$279  |
| SupraFAX v.32 Modem             | \$289  |
| SupraFAX v.32bis Modem          | \$389  |
| Atari Lynx System               | \$99   |
| Atari Complete Lynx             | \$149  |
| ALL LYNX GAMES ONLY             | \$35   |
| Mega 7 Keyboard Cable           | \$14   |
| VIDI-ST Video Digitizer         | \$129  |
| VIDI-RGB Splitter               | \$99   |
| Complete VIDI Package           | \$259  |
| Stereo Replay                   | \$129  |
| Stereo Master                   | \$69   |
| Autoswitch Overscan             | \$109  |

### NEW, HIGH-CALORIE GAMES

|                                |      |
|--------------------------------|------|
| Knightmare                     | \$42 |
| Populous II                    | \$47 |
| Lemmings                       | \$35 |
| Oh No! More Lemmings!          | \$28 |
| More Lemmings Stand Alone Ver. | \$35 |
| Sim City And Populous Combo    | \$39 |
| Rainbow Collection             | \$35 |
| Hoyle's Book Of Games          | \$29 |
| Captive                        | \$37 |
| Hard Drivin' II                | \$37 |
| Pygnosis Obitus (NEW!)         | \$39 |
| Silent Service II              | \$52 |
| F-19 Stealth Fighter           | \$45 |
| Deuteros                       | \$41 |
| Utopia                         | \$42 |
| Realms                         | \$44 |
| Jack Nicklaus Golf             | \$39 |
| Shadow Sorcerer                | \$42 |
| Mega Lo Mania                  | \$39 |
| Disciples Of Steel             | \$39 |

### NEW, HIGH-CALORIE GAMES

|                        |      |
|------------------------|------|
| Gauntlet III           | \$39 |
| Dungeon Master         | \$24 |
| Chaos Strikes Back     | \$24 |
| Maddog Williams        | \$39 |
| M1 Tank Platoon        | \$39 |
| Flight Simulator II    | \$35 |
| Railroad Tycoon        | \$49 |
| Flight of the Intruder | \$39 |
| Magic Pockets          | \$39 |
| F-15 Strike Eagle II   | \$49 |
| Life and Death         | \$49 |
| DC Game Workbench      | \$99 |
| STOS The Game Creator  | \$39 |
| STOS Compiler          | \$29 |
| Terminator II          | \$39 |
| Maupiti Island         | \$39 |
| Midwinter II           | \$49 |
| Rick Dangerous II      | \$39 |
| Shadow of the Beast    | \$29 |
| Thunderhawk            | \$47 |

## FROM THE CHAIR

### Toad's Top Controller Picks

- #1 Beetle Mouse \$45
  - #2 Golden Image Standard Mouse \$45
  - #3 Alpha Data Standard Mouse \$39
  - #4 Atari Standard Mouse \$41
  - #5 Kraft Tripletrak Trackball \$59
  - #6 Alpha Data Trackball \$53
  - #7 Wico Command Control Joystick \$23
  - #8 Atari CX40 Standard Joystick \$7
  - #9 Atari CX80 Trackball (For ST) \$39
  - #10 Golden Img Mouse & Deluxe Paint \$79
- Items Are Listed In No Particular Order.

### Spring & Summer

Winter is slowly but surely giving way to the warmth and raw flavor of spring, and our Spring/Summer catalog will be out very shortly. The Spring/Summer catalog will be our biggest and best printing effort yet! We're moving, too! A tremendously large location is being prepared for us now, and we should be in by Summer! We're not moving far, though — just across the street! Call for more information. Thanks for your continual support. We appreciate it.



## Toad Computers

556 Baltimore Annapolis Blvd.  
Severna Park, MD 21146-3818  
MD Residents Add 5% Sales Tax

(800) 448-TOAD  
(410) 544-6943 Info  
(410) 544-1329 FAX  
(410) 544-6999 BBS

Our logo's running for president. Support the TOAD-IN-92 write-in campaign!

"Use your head instead of a hot rack." — J.E.D.  
"A foolish consistency is the hobgoblin of little minds." — R.W.E.  
"The wise man built his words upon the rocks, but I'm not bound to follow suit." — K.E.M.

### GET OUR CATALOG

For our complete menu listing, be sure to call or write us to get a copy of our most recent catalog and to be placed onto our mailing list. No Atari connoisseur should be without our insightful reviews of hundreds of Atari products. Call us at Toad Computers TOADAY to get onto one of the most hip-hopping mailing lists around today! Get postcards, catalogs and more! All you have to do is call!

toad café



# Writing A Bulletin Board ON THE ATARI 8-BIT, PART 2

**James Bastable (BaPAUG)**

In this second article, I will show you how to access the RS-232/modem port by means of XIO commands. XIO commands may seem, on the surface, to be complex but they are very easy to use. The fact that one XIO command can perform many functions often leads the programmer into believing XIO usage is confusing.

I will deal with each necessary XIO command in some depth and my lengthy explanations may appear to contradict my above statement. I can only repeat that, once studied, the XIO commands are very straightforward.

To illustrate this article, I have put together a short program which contains the necessary XIO and OPEN commands you need to write your Bulletin Board.

There is no need to type the program in if you do not wish to, as it does nothing spectacular. It is important, however, for you to study how each line of the program works. (See the program listing at the end of this article.)

Let's go through the program line by line:

Line 90 CLOSEs the channel, which is a very good habit to get into, especially when using the 850 Interface as you will see later.

Line 100 OPENS channel 1 to Port 1 of the 850 in Read Only mode (similar to the disk OPEN). It could have been set to Write Only (OPEN #1,8,0,"R1:") but not to Read/Write (OPEN #1,13,0,"R1:") as the following line would not work.

Line 110 is XIO command 34, which switches the DTR (Data Terminal Ready) and RTS (Request to Send) lines on. Unless this XIO command is issued, a lot of modems on the market will not enter into Auto Answer mode.

The number 240 in AUX1 in the XIO command sets this up. Again, this command is explained in greater detail later.

LINE 120 issues the STATUS command, the X variable being a dummy. When STATUS is issued, information about the condition of the port is updated in memory location 747.

LINE 130 PEEKs location 747 and checks whether it is equal to 253. If it is, the modem has made a successful connection. If not, the program loops back to line 120.

In LINE 210, the channel is again closed, because the port is going to be reconfigured.

LINE 220 is the XIO 36 command. This takes a little bit more explaining. All XIO commands have two auxiliaries in this form:

XIO COM,#CN, AUX1,AUX2, "Rx:"

COM equals the XIO number, in this case 36. CN equals the channel number, AUX1 and AUX2 are auxiliary 1 and 2 respectively.

In the case of XIO 34, auxiliary 2 did nothing and can do nothing. With XIO 36, both AUX1 and AUX2 are important in configuring the RS232 port.

Let's look at AUX1 of XIO 36 first. The value placed here tells the RS232 port what baud rate to work at.

The list at the top of the next column contains the corresponding values for the various baud rates.

| Value | Baud Rate   |
|-------|-------------|
| 0     | 300 BAUD    |
| 1     | 45.5 BAUD   |
| 2     | 50 BAUD     |
| 3     | 56.875 BAUD |
| 4     | 75 BAUD     |
| 5     | 110 BAUD    |
| 6     | 134.5 BAUD  |
| 7     | 150 BAUD    |
| 8     | 300 BAUD    |
| 9     | 600 BAUD    |
| 10    | 1200 BAUD   |
| 11    | 1800 BAUD   |
| 12    | 2400 BAUD   |
| 13    | 4800 BAUD   |
| 14    | 9600 BAUD   |
| 15    | 9600 BAUD   |

A zero (or 8 in this case only) in AUX1 configures the port to 300 baud. To this AUX1, a second value can be added which tells the port the word size (the amount of bits in a single character) that will be used. You need not worry about this, as 99% of Bulletin Boards use 8-bit word length.

| Value | Word Size |
|-------|-----------|
| 0     | 8 BITS    |
| 16    | 7 BITS    |
| 32    | 6 BITS    |
| 48    | 5 BITS    |

You would add the value from this table to the value for the baud rate you wish to work at. Now, to this value you can add yet another to tell the port how many stop bits must be sent with each word (99.999% of the time it's 1 stop bit).

| Value | Stop Bits   |
|-------|-------------|
| 0     | 1 STOP BIT  |
| 128   | 2 STOP BITS |

In the program, I set the baud rate to 300 (value 0), the word size to 8 bits (value 0) and the stop bits to 1 (value 0). 0+0+0=0.



The second auxiliary of XIO 36 specifies which lines are to be monitored. The following chart indicates which value needs to be placed in AUX2:

| Value | Lines Monitored |
|-------|-----------------|
| 0     | NONE            |
| 1     | CRX             |
| 2     | CTS             |
| 3     | CTS, CRX        |
| 4     | DSR             |
| 5     | DSR, CRX        |
| 6     | DSR, CTS        |
| 7     | DSR, CTS, CRX   |

CRX equals Carrier Detect, DSR is Data Set Ready and CTS is Clear To Send. In the program, I have opted to monitor all three. Why? Simple. By doing this, whenever someone drops carrier (disconnects unexpectedly), an error is produced which can be trapped in BASIC. This is very handy when you think about it, which I hope you do.

Once an XIO 36 has been issued to a port, it is remembered until you switch off the computer or reconfigure the port again.

Line 230 OPENs the port for input and output, which is what we need for sending and receiving data during the normal running of the Bulletin Board.

LINE 240 uses the XIO 38 command, which tells the RS232 what type of ASCII/ATASCII conversion you want, if any, and whether the RS232 will append line feeds. Both AUX1 and AUX2 are used.

Let's look at AUX1 first. The value placed here tells the RS232 whether you want *No Translation* (as in file transfer or if your Bulletin Board is going to work in ATASCII mode), *Light Translation* (which is the normal setting for standard ASCII communication) or *Heavy Translation*, which I never use because it tends to disallow some characters that may be needed.

Here is a list of values and their meanings:

| Value | Translation       |
|-------|-------------------|
| 0     | Light Translation |
| 16    | Heavy Translation |
| 32    | No Translation    |

Both Heavy and Light translation will convert ATASCII carriage return (155) to ASCII (13). They will also ignore the 8th (most significant) bit as all standard ASCII characters only use 7 bits. *No Translation* means exactly what it says.

To this value we can add another which sets the input Parity mode. A listing of these values can be found at the top of the next column.

| Value | Effect On Input Parity          |
|-------|---------------------------------|
| 0     | Ignore and Do Not Change        |
| 4     | Check for Odd Parity and Clear  |
| 8     | Check for Even Parity and Clear |
| 12    | Ignore and Clear                |

The first option (value 0) is the most common. To effect the Output Parity you can add one of the following values:

| Value | Effect On Output Parity |
|-------|-------------------------|
| 0     | Do Not Change           |
| 1     | Set to Odd              |
| 2     | Set to Even             |
| 3     | Set to One              |

Once again, the first option (value 0) is most common.

AUX1 of XIO 38 can also instruct the RS232 whether to send a Line Feed character (ASCII 10) after a carriage return or not. Atari 8-bits don't need this, but there are some computers that do, so it really should be sent. Most computers that don't need the character appended ignore it anyway, so it does no harm.

So, having taken two values from the three tables and added them together, you can now add to this new value a 64 if you wish Line Feeds to be sent or 0 if not.

AUX2 of XIO 38 is only used when *Heavy Translation* is set. In this mode, whenever the RS232 ports receives data which cannot be converted to a recognized ASCII character, the RS232 changes it to a *won't translate character*. This character is set by placing a value in AUX2. On the very rare occasions when I have used this mode, I have placed a value of 126 (ATASCII Backspace) in this auxiliary, but any value between 0 and 255 can be placed here.

LINE 250 configures the port to Concurrent mode. AUX1 and AUX2 serve no purpose, so they are set to zero. Once Concurrent mode has been made active by XIO 40, the Break key is disabled, which is helpful as long as you are confident you won't need it. You can always press the Reset key if you get into trouble, but this can sometimes play havoc with the port configuration.

Annoyingly, you cannot access any other external device such as disk drives, cassette players, printers, etc. while the program is in Concurrent mode. There is no way around this, I've tried. Remember me saying it was important to get into the habit of closing a channel before using OPEN?

LINE 310 loads some text into the string BUF\$. This isn't necessary in this case, the text could have just been PRINTed out to the port without being entered



into the string first. When you come to actually programming a Bulletin Board, you will be reading text from the disk drive. Since you cannot have Concurrent mode active while reading from the drive, you will be pushing text into a string anyway.

LINE 320 PRINTs the contents of BUF\$ to the RS232. Using the trailing semicolon suppresses the carriage return from being sent. This is not echoed onto the computer screen which, in the real world, would be so. A simple PRINT BUF\$; placed here would do the job nicely.

LINE 370 and 380 clears the values in locations 747 and 748. These locations now have a different meaning when in Concurrent mode. Remember location 747 was used earlier for detecting a successful modem connection. I have not found a use for location 748, but the 850 manual says clear it, so I clear it.

In LINE 390, CNT is set to one, which is used to keep track of the amount of data that has been received and ANS\$ is set to a null string where the incoming data will be placed.

LINE 400 issues STATUS, which updates location 747.

LINE 410 PEEKs location 747. Why? I wondered when you were going to ask! In Concurrent mode, location 747 contains the amount of bytes in the buffer. By checking if this is greater than zero, we know if data is coming into the RS232 port. As a matter of interest, the standard buffer size for the RS232 handler is 32 bytes, and if you don't get the data out quick enough you start to lose it. More about that later.

LINE 430 GETs a byte from the buffer, which must be available otherwise the program would not have reached this far.

LINE 440 checks to see whether the value gotten in line 430 is 155, which is an ATASCII carriage return. If the value is 155, then the program knows the caller has finished typing.

I know what you're thinking! You're saying to yourself, "All very well checking for a 155, but what if someone calls who is not using an Atari 8-bit and they send an ASCII 13, which is a standard code for Carriage Return?"

I say, "Aha, but the RS232 interface, being a clever little devil, knows this and converts it to a 155, so there." It also converts it back when sending. This option was set in line 240 using XIO 38.

LINE 450 places the data gotten in line 430 into the string BUF\$.

LINE 460 increments variable CNT, which is done every time data is received other than ATASCII 155. Then, it loops back to get more data if possible.

LINES 520 to 590 simply loads text into BUF\$ and PRINTs it out to channel 1. This time, no trailing semicolon is used, which means that a Carriage Return is sent (and a Line Feed, if a 64 was added to AUX1 of XIO 38).

LINE 640 CLOSEs the channel, as it is going to be altered. As a matter of great interest, whenever the

RS232 port is CLOSED, all the contents of the buffer is wiped. I sometimes close a port whenever a large amount of data corruption has been detected, just to clear out the rubbish...

LINE 650 OPENS the channel in Write Only mode. This is used because the following XIO command cannot be used in Concurrent mode.

LINE 660 turns off RTS and DTR control, which forces the modem to drop carrier. This is the opposite to the XIO 34 used in line 110. To calculate the values used, here is yet another table:

| Value | Control      |
|-------|--------------|
| 32    | Turn RTS Off |
| 48    | Turn RTS On  |
| 128   | Turn DTR Off |
| 192   | Turn DTR On  |

So you see, by adding two values together—128 and 32 equalling 160—both DTR and RTS controls are turned off.

Confused? Don't worry about it, so was I at first. But, I soon learned that a lot of the settings are unnecessary when operating a standard Bulletin Board. If you are planning on using RS232 for more specialized applications, I would suggest you study the matter more by obtaining the excellent manual for the 850 Interface. But general communications is nothing out of the ordinary, and so does not require you to know everything there is to know.

## ATTENTION ATARI 8-BIT USERS

### THE 1992 BELLCOM CATALOGUE

YOUR GUIDE TO THE BEST IN ATARI  
800-XL-XE-XEGS PUBLIC DOMAIN &  
SHAREWARE SOFTWARE

- 100's of 8-Bit Disks to choose from.
- 1000's of Programs from around the world.
- Graphics, Music, Educational, Utilities, Telecomm, Home & Business, and Games galore.
- Every program is tested and GUARANTEED.
- Fast and Dependable worldwide service.
- AND discover how you can get your FREE copy of INFO DISK, the informative new 8-Bit Source Guide which lists the current sources for Atari products & publications.

BELLCOM's big 32 page Catalogue very clearly describes every program. It's the most descriptive Atari 8-bit P.D. Catalogue available anywhere! And it's absolutely FREE.

SEND FOR YOUR FREE CATALOGUE TODAY

**BELLCOM**

P.O. Box 1043, Peterborough,  
Ontario, Canada K9J 7A5



In the next article, I will be offering hints and tips on how to speed up data transfer from BASIC. When I was writing my first program, I was told BASIC could barely handle data at 300 baud, let alone 1200 baud which my own Bulletin Board runs at. I admit that I use Binary GET, which is built into BASIC XE, but I'll give you a Machine Code routine that simulates this command.

```

10 REM A simple example of input &
20 REM output to the RS232 interface.
30 DIM ANS$(40),BUF$(500)
40 REM -----
50 REM -This routine detects if the-
60 REM -Modem has made a successful-
70 REM -connection. -
80 REM -----
90 CLOSE #1:REM To be sure.
100 OPEN #1,4,0,"R1":REM Port 1
110 XIO 34,#1,240,0,"R1:"
120 STATUS #1,X
130 IF PEEK(747)=253 THEN 210
140 GOTO 120
150 REM -----
160 REM -If the program reaches here-
170 REM -the Modem has answered. Now-
180 REM -configure port 1 to enable -
190 REM -input and output. -
200 REM -----

```



Before I go, a word of warning to Turbo BASIC users. When TB is loaded, it wipes the 850's RS232 handler, thereby preventing the use of any programs that use the RS232 ports. I will give you a program that will boot the 850 after loading.

Until next time.

```

210 CLOSE #1:REM To be sure.
220 XIO 36,#1,C0,7,"R1":REM Set to 300 Baud.
230 OPEN #1,13,0,"R1":REM Open for input &
    output.
240 XIO 38,#1,64,0,"R1":REM Tells RS232 to
    send line feeds.
250 XIO 40,#1,0,0,"R1":REM Start Concurrent
    Mode.
260 REM -----
270 REM -Now we can send some data -
280 REM -to the RS232. We'll ask for-
290 REM -the name of the caller. -
300 REM -----
310 BUF$="What is your name caller?"
320 PRINT #1;BUF$;:REM Send Data
330 REM -----
340 REM -Now we'll check for data -
350 REM -Incoming -
360 REM -----
370 POKE 747,0:REM Clear the memory
380 POKE 748,0:REM locations to check
390 CNT=1:ANS$=""
400 STATUS #1,X
410 IF PEEK(747)=0 THEN 400
420 REM Line 430 waits until data is in
    buffer.
430 GET #1,X:REM Pull one byte from buffer.
440 IF X=155 THEN GOTO 520:REM 155=return key
    pressed.
450 ANS$(CNT,CNT)=CHR$(X):REM Store data in
    string
460 CNT=CNT+1:GOTO 400
470 REM -----
480 REM -Should now have a name in -
490 REM -in ans$. Now we will send -
500 REM -a welcome message. -
510 REM -----
520 BUF$="Welcome ":BUF$(LEN(BUF$)+1)=ANS$
530 BUF$(LEN(BUF$)+1)=" to my Bulletin"
540 PRINT #1;BUF$
550 BUF$="Board. As this is only an example,"
560 PRINT #1;BUF$
570 BUF$="I will log you off now. Goodbye."
580 PRINT #1;BUF$
590 PRINT #1:REM sends a carriage return
    only.
600 REM -----
610 REM -Now we will force the modem-
620 REM -to drop the call. -
630 REM -----
640 CLOSE #1
650 OPEN #1,8,0,"R1:"
660 XIO 34,#1,160,0,"R1":REM this line does
    the job.
670 RUN

```

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>The ATARI XL/XE Commercial Software Drought is OVER !!!</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p>SOFTWARE INFINITY proudly presents the First Major ATARI XL/XE Commercial GAME Releases produced for the North American market since 1987!! Eleven spellbinding super - sophisticated 1991 GAMES on 9 economically - priced premium quality Disks! Unveiled to unanimous critical acclaim worldwide, and already Bestsellers in Europe -- now newly enhanced to revitalize your XL/XE! Every GAME in S/S NEW KE-SOFT Series boasts ultra-realistic &amp; colorful state of the art high-resolution animated graphics, outstanding music, and lots of clever surprises. Many also feature digitized speech &amp; sound effects, can save your high scores or give you help-prompts, allow you to skip levels or pause a GAME-in progress, and provide a user - friendly Editor to create your own new screens. Handsome and comprehensively detailed Instruction Manuals are written in clear, easily understandable English. All 11 superior 64K KE-SOFT titles are endlessly entertaining to novice and experienced ATARI GAMERS alike.</p>                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>\$10.50 GAMES</b><br/>2 or more for \$9.50 each!</p> <p><b>ZADOR</b> (Mah-Jong)</p> <p>Turn over all 144 Chinese-symbol tiles on the game board by matching singles to make pairs that are solely connectable by an invisible line (which can't cross any active lines or be built more than twice)! 20 high-powered levels.</p> <p><b>DRAG</b></p> <p>Guide intrepid Drag the Frog past deadly mines, exploding bombs, &amp; falling rocks in a treacherous underground lair to collect diamonds and escape before his air runs out! Fifty screens of exciting Boulderdash - type arcade action.</p> <p><b>SOGON</b></p> <p>Navigate your sturdy forklift around the 50 barrier-filled floors of a skyscraper to relocate large crates one at a time to waiting storage bays. Once you've moved a crate to any perimeter-wall or partition, you can't pull it back -- devious!</p> <p><b>ZEBU-LAND</b></p> <p>Help Zebu engineer the escape of his 3 brothers from a 50-level labyrinthine world of revolving doors and blocked passageways (move wall-segments away to reveal exits)!</p> <p><b>DREDIS</b></p> <p>At last -- the unparalleled mind-boggling Commercial ATARI XL/XE version of the arcade champ Tetris! Ultra-challenging puzzle, multiple levels of difficulty, one- &amp; 2 - player modes.</p> | <p><b>\$14.50 GAMES</b><br/>2 or more for \$12.50 each!</p> <p><b>TECHNO NINJA</b></p> <p>Voyage to a hostile alien world to reclaim your home planet's ultimate source of power! Encounter 10 perilous landscapes on 100 screens. Gain energy, earn up to 8 extra weapons, battle over 50 monsters. Enhanced density disk.</p> <p><b>CULTIVATION I CHROMATICS</b></p> <p>Two brain-busting puzzlers on one disk!<br/><b>CULTIVATION</b>: Strategically "cultivate" matching symbol-blocks; push together like angles in the proper order to make pairs &amp; clear your choice of 100 screens on 10 levels.<br/><b>CHROMATICS</b>: Rotate the hues of blocks falling into a well to place 3 - 5 same-colored blocks together at the bottom; mesmerizing 3 - level Tetris - style contest.</p> <p><b>OBLITROID</b></p> <p>As the last Star Warrior of Xyros, you must track the evil Tindalos to his underground dungeon and engage in mortal combat! Find special weaponry to survive never-before-seen dangers on 4 Worlds comprising 140 screens. Manual features map and clues. Enhanced density disk.</p> <p><b>TOBOT I BROS</b></p> <p>Two invigorating arcade adventures for the price of one!<br/><b>TOBOT</b>: Using his versatile laser gun, our robot superhero must escape a spooky 50 - room castle!<br/><b>BROS</b> (Super Mario Brothers - inspired): Traverse 8 Worlds with 4 Underworlds each to rescue your brother from a hidden castle overrun by legions of monsters! E-D.</p> |
| <p>Order 3 or more KE-SOFT GAME titles Mixed (\$14.50 &amp; \$10.50 items together) -- subtract \$1.50 from the price of each! Or collect 'em ALL -- get Complete Set of ALL 11 Original KE-SOFT GAMES described above for just \$83!</p> <p>Great KE-SOFT GAMES DEMO DISK with playable sample screens -- FREE with any 2 GAME Disks, or \$4.00 separately. S/S Large &amp; Spectacular NEW ATARI 800XL/ XE/GS Public Domain CATALOG showcasing the BEST ATARI 8-Bit P-D in North America, is only \$2.00, or FREE on request with any 2 KE-SOFT GAMES.</p> <p>SHIPPING AND HANDLING is always just \$3 in North America and \$5 internationally, regardless of quantity of KE-SOFT products ordered. NO State Sales Tax is due.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p><b>Brand NEW KE-SOFT GAME Titles from SI</b></p> <p><b>BOMBER JACK</b> -- Superb battle of wits!<br/><b>A S H B O</b> -- Battle for your XL/XE<br/>\$10.50 ea. -- \$9.50 for 2+!</p> <p><b>PLAYERS DREAM I</b> -- Plot and Ski Race (2 GAMES)<br/><b>LEVEL DISK</b> -- 35 New Levels for TOBOT, 50 for SOGON,<br/>\$14.50 ea. -- \$12.50 for 2+! &amp; 100 for CULTIVATION!</p> <p><small>This SI Informational Text page may be freely reproduced or excerpted in any media.</small></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



# ATARI 8-BIT

## SOFTWARE - PARTS AND BOOKS FOR ATARI XL / XE & 800/400 COMPUTERS

### 1050 MECHANISM

Factory fresh TANDON mechs. make difficult repairs a snap. Units are complete with Head, Stepper, Spindle motor, belt etc. Just plug in, no difficult alignments or adjustments required.

**\$39<sup>95</sup>**

### POWER PACKS

Exact replacement transformer for 800/400, 1050 810, 1200XL, 850, and XF551 units. Part #C017945.

**\$14<sup>50</sup>** ea.

### XL/XE SUPPLY

Power Pak for 800XL, 600XL, 130XE, 65XE & XE Game.

**\$25<sup>00</sup>**

### KEYBOARDS

New and complete subassembly. Easy internal replacement.

130XE/65XE **\$35.00**  
800 ..... **\$40.00**  
800XL ..... **\$29.50**

### XL 40 PIN LSI CHIP SET

A Complete set of 40 Pin Large Scale Integrated Circuits for your 800XL, 600XL or 1200XL computer.

Great for quick repairs! Set contains one each of the following: CPU, GTIA, ANTIC, CIA and POKEY.

**\$14<sup>95</sup>**

### 800 5 PIECE BOARD SET

Includes Main Board, Power Board CPU, 10K O.S. and 16K RAM Board. All boards new, tested and fully populated. Set includes instructions that will allow you to repair ANY 800 Computer **\$28.50**

### 1050 REPAIRS

We are now offering a limited repair service on the Atari 1050 Disk Drive. Please call our Service Dept. at 510-352-3787 for a Repair Authorization Number. Units without RA# will not be accepted. Service rate... **\$69.95**

### MISCELLANEOUS

600XL 64K UPGRADE KIT ..... **\$19.95**  
13 PIN SERIAL I/O CABLE ..... **\$4.50**  
SPECIAL - 3 I/O CABLES FOR \$10.00  
ACE JOYSTICK ..... **\$7.95**  
POWERPLAYER JOYSTICK ..... **\$12.95**  
COMPUTER TO TV SWITCH BOX ..... **\$6.95**  
400 BOARD SET (w/o Kyo) ..... **\$18.95**  
PADDLE CONTROLLERS ..... **\$9.95**  
REV. "C" BASIC ROM IC ..... **\$15.00**  
Newell 256K 800XL Upgrade ..... **\$27.50**  
Set of 256K RAM CHIPS ..... **\$19.95**  
Newell 1 Meg 800XL Upgrade ..... **\$42.50**  
Newell 1 Meg 130XE Upgrade ..... **\$39.95**  
850 or PR MODEM CABLE ..... **\$4.50**  
850 or PR PRINTER CABLE ..... **\$4.50**  
8-BIT MONITOR CABLE ..... **\$9.95**  
XEGS Keyboard Extension Cable ..... **\$14.50**  
I/O 13 PIN PC CONNECTOR ..... **\$4.50**  
I/O 13 PIN PLUG KIT (Cable End) ..... **\$4.50**  
RF CABLE (COMPUTER TO TV) ..... **\$3.75**  
1050 TRACK ZERO SENSOR ..... **\$8.50**  
Animation Station Graphics Tablet ..... **\$64.95**  
SUPRA 2400 BAUD MODEM ..... **\$109.00**  
1050 Floppy Disk Controller - 2793 ..... **\$19.50**  
PRINTER INTERFACE ..... **\$43.95**

### BOOKS

Mapping the Atari (XL/XE) **\$24.95**  
Mapping the Atari (800/400) **\$12.95**  
Compute's First Book of Atari **\$9.95**  
Compute's Third Book of Atari  
(Includes a high quality type in Word Processor) ..... **\$9.95**  
First & Third Book Combo **\$14.95**  
First Book of Atari Graphics **\$9.95**  
2nd Book of Atari Graphics **\$9.95**  
Graphic Book Combo #1 & 2 **\$14.95**  
XE USERS HANDBOOK **\$24.95**  
XL USERS HANDBOOK **\$24.95**  
Assembly Language Guide **\$24.95**  
USING NEWSROOM ..... **\$19.95**  
Programmers Ref. Guide **\$9.95**  
HackerBook Tricks & Tips **\$5.00**  
Write Your Own Games ..... **\$5.00**  
How to 6502 Program ..... **\$5.00**  
Basic Reference Manual ..... **\$5.00**  
INSIDE ATARI BASIC ..... **\$5.00**  
DOS 2.0 Reference Manual **\$7.50**  
Tech Ref. Notes for 800/400 **\$19.95**  
The Computer Playground **\$5.95**  
SpeedScript Word Processor **\$14.95**

### 1st XLENT Word Processor

A full-featured, word processor that is easy to learn, ICON based and can be used with a joystick. Edit up to two documents at once. Preview mode shows your document in simulated 80 columns, just as it will appear on your printer. DISK.

**\$25.00**

## PRINTER INTERFACE

MICROPRINT INTERFACE  
ALLOWS YOU TO CONNECT ANY STANDARD PARALLEL PRINTER TO YOUR ATARI 8-BIT. WORKS WITH 800XL, 130XE, 800/400, 65XE, XEGS, 600XL. (1200XL requires easy modification). **\$43.95**

### BOOKKEEPER & KEYPAD

You get both Atari's 8 bit professional bookkeeping system and the handy CX85 numeric keypad for one low price. Packages Factory sealed **\$19<sup>95</sup>** 4 DISK SET

### VISICALC SPREADSHEET

Unleash the computing power of your 8 bit Atari with Visicalc. Compute everything from home finances to high powered financial projections. Hundreds of uses **\$19<sup>95</sup>** DISK

### Super DataBase 1-2-3

INNOVATIVE PRODUCT CREATES AMAZING DATABASE APPLICATIONS EVEN IF YOU HAVE NO PROGRAMMING SKILL. ONCE YOU CREATE A PROGRAM WITH SUPER DATABASE IT BECOMES A STAND-ALONE APPLICATION THAT RUNS ON ITS OWN. "GENERATE" YOUR OWN PROGRAMS TO KEEP TRACK OF EVERYTHING. INCLUDES 137 PAGE MANUAL - 3 DISKS **\$59<sup>95</sup>**

### CARTRIDGES

For XL's/XE's 800/400

STAR TREK Cart. by SEGA ..... **\$9.95**  
PAC-MAN Cartridge ..... **\$4.00**  
DONKEY KONG Cartridge ..... **\$5.00**  
DELUXE INVADERS Cartridge ..... **\$4.00**  
STAR RAIDERS Cartridge ..... **\$5.00**  
WIZARD OF WOR Cartridge ..... **\$9.95**  
BLUE MAX Cartridge ..... **\$19.50**  
SPACE INVADERS Cartridge ..... **\$9.95**  
ARCHON Cartridge ..... **\$19.50**  
RESCUE ON FRACTALS Cart. .... **\$19.50**  
DAVID'S MIDNIGHT MAGIC Cart. .... **\$17.50**  
ONE ON ONE BASKETBALL Cart. .... **\$17.50**  
NECROMANCER Cartridge ..... **\$9.95**  
MILLPEDE Cartridge ..... **\$9.95**  
PLATTER MANIA Cart. by Epyx ..... **\$9.95**  
PENGU Cartridge ..... **\$9.95**  
EASTERN FRONT Cartridge ..... **\$12.50**  
ADVENTURE CREATOR Cartridge ..... **\$12.50**  
SILICON WARRIOR Cartridge ..... **\$9.95**  
MICROSOFT BASIC II Cartridge ..... **\$26.95**  
BASIC LANGUAGE Cartridge ..... **\$15.00**  
Editor/Assembler Cart. (No Manual) **\$9.95**  
PILOT LANGUAGE PACKAGE ..... **\$12.50**  
SPINNAKER EDUCATIONAL CARTRIDGES  
FRACTION FEVER Cartridge ..... **\$8.75**  
FACEMAKER Cartridge ..... **\$8.75**  
ALPHABET ZOO Cartridge ..... **\$8.75**  
UP FOR GRABS Cartridge ..... **\$5.00**  
ALF IN THE COLOR CAVES Cart. .... **\$8.75**  
DELTA DRAWING Cartridge ..... **\$8.75**  
STORY MACHINE 800/400 only ..... **\$8.75**  
LINKING LOGIC (Fisher-Price) Cart. .... **\$8.75**  
GRANDMA'S HOUSE (Disk) ..... **\$8.75**

### DATAISOFT DISKS

VIDEO TITLE SHOP 3 DISK BONUS PACK  
Contains VTS + 2 Companion Disks **\$14.95**  
TARGET PRACTICE / GENTRY ..... **\$12.50**  
ROSEN'S BRIGADE / GENTRY ..... **\$12.50**  
SEA BANDIT / GENTRY ..... **\$12.50**  
SPIDER QUAIL / GENTRY ..... **\$12.50**  
STARBASE FIGHTER / GENTRY ..... **\$12.50**  
MANIAC MINER / GENTRY ..... **\$12.50**  
ALTERNATE REALITY (The City) ..... **\$12.50**  
ALTERNATE REALITY The Dungeon ..... **\$12.50**  
SARACEN Disk ..... **\$9.95**  
GUNSLINGER Disk (64K) ..... **\$9.95**  
TOMAHAWK Helicopter Game 64K ..... **\$12.50**  
THEATER EUROPE War Game ..... **\$12.50**  
BRUCE LEE Disk ..... **\$12.50**  
MERCENARY Disk ..... **\$12.50**  
CONAN Disk ..... **\$12.50**  
221-B BAKER STREET (64K) ..... **\$12.50**  
221-B BAKER ST. Case Library 1 ..... **\$9.95**  
Napoleon in Russia (Borodino 1812) ..... **\$9.95**  
BISMARCK ..... **\$9.95**  
ZORRO ..... **\$9.95**  
MOONSHUTTLE ..... **\$4.95**  
CROSSCHECK ..... **\$7.50**  
MICROPROSE DISKS  
F-15 STRIKE EAGLE ..... **\$8.95**  
TOP GUNNER COLLECTION ..... **\$8.95**  
SILENT SERVICE ..... **\$8.95**  
KENNEDY APPROACH ..... **\$8.95**  
DECISION IN THE DESERT ..... **\$8.95**  
CRUSADE IN EUROPE ..... **\$8.95**  
CONFLICT IN VIETNAM ..... **\$8.95**  
HELLCAT ACE ..... **\$8.95**

### INFOCOM ADVENTURES

WISHBINGER ..... **\$9.95**  
MOONMIST ..... **\$9.95**  
SEA STALKER ..... **\$9.95**  
INFIDEL ..... **\$9.95**  
CUT THROATS ..... **\$9.95**  
BALLYHOO ..... **\$9.95**  
SUSPENDED ..... **\$9.95**  
ZORK 1 ..... **\$9.95**  
PLANETFALL ..... **\$14.95**  
DEADLINE ..... **\$19.95**

### Disks-XL's/XE's/800

CYCLE KNIGHT ..... **\$9.95**  
WHOMPER STOMPER ..... **\$9.95**  
GOLDEN OLDSIES ..... **\$9.95**  
TRIAD ..... **\$9.95**  
SUMMER GAMES BY EPYX ..... **\$4.75**  
ALIEN AMBUSH ..... **\$4.95**  
SPIDERMAN ..... **\$4.95**  
TECHNA-COLOR DREAM ..... **\$9.95**  
REAR GUARD ..... **\$4.95**  
ROCKET REPAIRMAN ..... **\$4.95**  
SPEED KING ..... **\$4.95**  
STRATOS ..... **\$4.95**  
FREAKY FACTORY ..... **\$4.95**  
REPTON ..... **\$4.95**  
L.A. SWAT ..... **\$7.50**  
THE GAMBLER ..... **\$7.50**  
GHOST CHASER ..... **\$9.95**  
DROPTONE ..... **\$12.50**  
DEBUG ..... **\$12.50**  
SUPER BOULDERDASH ..... **\$12.50**  
MASTER OF THE LAMPS ..... **\$14.50**

SPECIAL: SCOTT ADAMS GRAPHIC ADVENTURES 1-6. PACKAGES INCLUDES: ADVENTURELAND, PIRATE ADVENTURE, ADVENTURE #3, VOODOO CASTLE, THE COUNT AND STRANGE ODESSY... **\$14.95**

### Disks-XL's/XE's/800

ULTIMA III (EXODUS) ..... **\$29.95**  
CHROMACAD MODEL BUILDER **\$29.95**  
ChromaCad SURFACE SHADER 130XE **\$29.95**  
1ST XLENT WORD PROCESSOR ..... **\$25.00**  
NEWSROOM (1050 or XF551 - 64K) **\$13.50**  
BLOCKABOO (GREAT NEW GAME) **\$14.95**  
AUTO DUEL ..... **\$15.00**  
GAUNTLET (64K) ..... **\$12.50**  
Deeper Dungeons (Req. Gauntlet) **\$12.50**  
INFILTRATOR (64K) ..... **\$12.50**  
TRAILBLAZER (by Mindscape) **\$12.50**  
CROSS COUNTRY ROAD RACE ..... **\$9.95**  
GHOSTBUSTERS Disk ..... **\$9.95**  
SEVEN CITIES OF GOLD ..... **\$9.95**  
RACING DESTRUCTION SET ..... **\$9.95**  
ONE ON ONE BASKETBALL ..... **\$9.95**  
LORDS OF CONQUEST ..... **\$9.95**  
F-15 STRIKE EAGLE Disk ..... **\$8.95**  
TOP GUNNER COLLECTION ..... **\$8.95**  
SILENT SERVICE Disk ..... **\$8.95**  
VISICALC Spreadsheet ..... **\$19.95**  
SHOWDOWN HOCKEY ..... **\$14.95**  
MINIATURE GOLF ..... **\$10.00**  
FORT APOCALYPSE-Disk ..... **\$7.50**  
ELECTRA-GUIDE Disk ..... **\$7.50**  
MIND MAZES (Educational) ..... **\$7.50**  
VIDEO VEGAS Poker & Slots ..... **\$25.00**  
STRIP KICKER ..... **\$7.50**  
ACTION BIKER ..... **\$7.50**  
KICK START ..... **\$7.50**  
MONEY TOOLS (Financial Utility) ..... **\$9.95**  
DIG DUG Disk ..... **\$9.95**  
PUZZLE PANIC Disk by Epyx ..... **\$9.95**  
COSTUME LAVE Disk (64K) ..... **\$9.95**  
OLIVE EMERALD (Jr. Adv.) ..... **\$9.95**  
FINANCIAL COOKBOOK ..... **\$9.95**  
SONG WRITER ..... **\$9.95**  
PREPPIE and PREPPIE II (2 GAMES) ..... **\$9.95**  
BUCKAROO BANZI ..... **\$12.50**  
WARGAMES (Based on the Movie) **\$12.50**  
DAY AT THE RACES (Horse Race) **\$12.50**  
CHESSMASTER 2000 ..... **\$12.50**  
PINBALL CONSTRUCTION SET ..... **\$12.50**  
BRIDGE 4.0 ..... **\$9.95**  
PEGAMON ..... **\$12.50**  
MUSIC CONSTRUCTION SET ..... **\$12.50**  
FOOBITSKY Disk / Board Game ..... **\$9.95**  
TEMPLE OF APHAI ..... **\$9.95**  
ALI-ANTS Disk ..... **\$12.50**  
MOUSE QUEST Disk (64K) ..... **\$12.50**  
ELECTRONIC DRUMMER Disk ..... **\$12.50**  
PIRATES OF THE BARBARY COAST **\$12.50**  
NICKERBOCKER Disk ..... **\$12.50**  
12 SCOTT ADAMS ADVENTURES **\$12.50**  
SORCEROR of Claymouge Castle **\$12.50**  
HACKER Adventure by Activision **\$9.95**  
MIND SHADOW Adventure 64K ..... **\$14.95**  
GUITAR WIZARD (Music Tutor) **\$14.95**  
BLAZING PADDLES (Graphics) **\$14.95**  
SCHEMATIC DESIGNER ..... **\$24.95**  
THE SCANALYZER ..... **\$29.95**  
Advanced Protection Techniques **\$24.95**  
BASIC TURBOCHARGER ..... **\$23.95**  
CHIPMUNK ..... **\$34.95**  
YOUR ATARI COMES ALIVE ..... **\$23.95**  
PAGE DESIGNER ..... **\$15.00**  
TYPESETTER ..... **\$20.00**  
PRINT SHOP ..... **\$39.95**

### SSI QUALITY SIMULATIONS

SSI U.S.A.F. ..... **\$19.95**  
SSI COMBAT LEADER ..... **\$19.95**  
SSI PANZER GRENADIER ..... **\$19.95**  
SSI FIFTY MISSION CRUSH ..... **\$19.95**  
SSI SONS OF LIBERTY ..... **\$19.95**  
SSI SIX GUN SHOOTOUT ..... **\$19.95**  
SSI KNIGHTS OF THE DESERT ..... **\$19.95**  
SSI Rebel Charge at Chickamauga **\$14.95**  
SSI SHILOH - Chantans Trail ..... **\$14.95**  
SSI EPIDEMIC ..... **\$19.95**  
SSI WIZARDS CROWN ..... **\$14.95**  
SSI GEMSTONE WARRIOR ..... **\$14.95**  
SSI COMPUTER QUARTERBACK ..... **\$19.95**  
SSI IMPERIUM GALACTUM ..... **\$19.95**  
SSI WARSHIP ..... **\$19.95**  
SSI NAM ..... **\$19.95**  
SSI WARGAME CONSTRUCTION SET ..... **\$14.95**  
SSI SHATTERED ALLIANCE ..... **\$19.95**

### EDUCATIONAL DISKS

MASTER TYPE (Typing Tutor) ..... **\$15.00**  
LINKWORD SPANISH ..... **\$22.50**  
LINKWORD GERMAN ..... **\$22.50**  
LINKWORD FRENCH ..... **\$22.50**  
A - LEARN TO READ (3 DISKS) ..... **\$12.95**  
A - READING COMPREHENSION ..... **\$12.95**  
SAT MATH ..... **\$17.95**  
SAT VERBAL ..... **\$17.95**  
COMPUTER AIDED MATH PROG. **\$10.00**  
HODGE PODGE (AGE 1 - 6) ..... **\$13.50**  
MONKEY MATH (AGE 4 - 10) ..... **\$17.50**  
MONKEY NEWS (GRADES 1 - 6) ..... **\$17.50**  
TEDDY BEAR Rainy Day Games ..... **\$12.50**  
COUNTING & ADDING with Tink ..... **\$9.95**

VIDEO TITLE SHOP - Create Dynamic Graphics displays for shows, expositions, window displays or for use with your VCR. Features include text fade in and out, fine text scroll, crawl and more. Includes paint program and 2 graphics disks **\$14.95**

CALL TOLL FREE

**1-800-551-9995**

OR CALL 510-352-3787

AMERICAN TECHN-VISION

Mail Order: 15338 Inverness St., San Leandro, Ca. 94579

Sales Office: 2098 Pike Ave., San Leandro, Ca. 94577

Terms: NO MINIMUM ORDER. We accept money orders, personal checks or C.O.D.s. VISA, Master/Card okay. Credit cards restricted to orders over \$14.50. No personal checks on C.O.D. - Shipping: \$4.75 shipping and handling on orders under \$150.00. Add \$4.00 for C.O.D. orders. In Canada or P.R. total \$8.00 for shipping and handling. Foreign shipping extra. Calif. residents include 8 1/4 % sales tax. All products new and guaranteed. All sales final. Send S.A.S.E for free catalog.

Prices subject to change without notice. Atari is a reg. trademark of Atari Corp.



# SPARTADOS 3.2 AND Turbo BASIC XL

## AN 8-BIT ATARIAN'S DREAM COMES TRUE!

**John Kasupski (WNYAUG)**

It seems as if I've been lamenting the fact that SpartaDOS 3.x and Turbo BASIC XL are incompatible since it was still possible to step in fresh dinosaur droppings.

Actually, of course, it hasn't been quite that long. It only seems like it to me each time I had to read any text that explained why the two are not compatible and never will be (because both use the RAM under the BASIC ROMs in the XL/XE computers).

Then, the SpartaDOS X cartridge came out.

I recently had the chance to play around with a friend's X-cart and found you can run Turbo BASIC XL on an extended-RAM Atari by telling the DOS to use the extended RAM instead of the RAM under the BASIC ROMs.

At that point, I began lamenting my lack of an X-cart of my own, and my lack of the funds necessary to purchase one.

My lamenting ended the evening of October 19, 1991 when I logged onto the Wizard's Attic BBS. A version of Turbo BASIC that was supposed to work with SpartaDOS 3.2 had been left for me as F-Mail! Needless to say, I downloaded it, hoping it wasn't an early (or late) April Fool's joke.

It was not an early April Fool's joke. It was an early Christmas present!

And, judging from the number of people who have written letters to magazine editors and users' groups wondering if anyone knew of a way to get Turbo BASIC to work with SpartaDOS, this is pret-

ty big news. It is possible to run the 400/800 version of Turbo BASIC XL with a modified version of SpartaDOS 3.2!

Everyone who said it would *never* be done, put that in your disk drives and boot it!

It seems John McGowan (author of some recent articles on TextPro that appeared in AIM) had a version of Turbo BASIC that works with the Atari 400/800.

Since these machines don't even *have* any RAM under the BASIC ROMs, John reasoned maybe it would be possible to use this version of Turbo BASIC with a disk-based version of SpartaDOS. But, alas, his initial attempts at doing so failed.

So, he uploaded the 400/800 version of Turbo BASIC to the Closer To Home BBS, where SysOp Tom Hunt had been working on a disk-based version of Atari BASIC (mainly due to the bugs in Atari BASIC Revision B)—a project which so far has produced CTH FastBasic.

Tom, not one to rest on his laurels (he's already written SnapShot, MTOS and other programs), was able to convert the 400/800 version of Turbo BASIC into a version that runs under a modified SpartaDOS.

This is only an alpha-test version, but I now have 22766 bytes available in Turbo BASIC on my 800XL. Considering that each of my attempts to run Turbo BASIC XL under SpartaDOS resulted in a total and immediate system crash, I'm quite satisfied with 22766 bytes.

I have yet to write a program that big anyway, except for when I was first learning to program in

BASIC and everything I wrote was an unbelievable kludge.

I can now develop and use my Turbo BASIC XL programs under my favorite DOS.

My hat is off to Tom Hunt and John McGowan for their collaboration on putting the best BASIC for the Atari 8-bit on working terms with the best DOS for the Atari.

And, if by chance this article manages to find its way to those two gentlemen, here's one enthusiastic volunteer for beta-testing when the time comes!

**SOFTWARE**  
*spectrum*

**Your Discount Computer Center**

Authorized  
**ATARI**  
Sales & Service

**Everyday Low Discount Prices**  
ATARI Software & Hardware  
IBM Compatibles, Software & Hardware  
Books Magazines & Accessories



**ACCEPTED**

*If you want it, we sell it! Give us a call, or  
drop by and Visit our Store.*

**386 Somerset Street**  
**N. Plainfield, New Jersey, 07060**  
**Telephone (908)561-8777**



# Spelunker from Brøderbund

## Revisiting a 1983 Atari 8-bit Game

### Dale Wooster (NWPAC)

Webster's Dictionary says a Spelunker is "one who explores caves." Well, you can try to find the treasure at the bottom of this cave and not even get dirty.

Of the thousands of games that have come along for the Atari 8-bit over the past 10 years or so, only a few can truly be called *classics*. Spelunker from Brøderbund is one of those near the top of the list. It is a tough and challenging game for one player, with super scrolling graphics, some unique sounds and positive crisp play action.

Listen to the patter of the Spelunker's feet as he/she scurries throughout the cave picking up all the flares, picks, keys, dynamite and a couple items I'm not too sure about—but get them anyway as their point values count towards your point total.

You learn where to use the items you find as you get farther down into the cave, so *never leave anything behind!* You can use the elevator to start at any level you wish, but I found it's best to start from the top and *never go back up the elevator*.

Spelunker requires a good joystick.

There are also a few keyboard commands you will need to use. The spacebar, for instance, is used to kill the Ghost. You will hear the eerie sounds of the ghost approaching. It can come from *any* direction, so don't get caught on a rope or near the screen edge. Turn to face the ghost while standing on the dirt floor, and when he is a few inches away, hit the spacebar.

A blast from your air tank will blow him away. Use this sparingly as it reduces your air supply faster.

Another key fires a flare above your head. You use this when you hear and see the vampire bats flying above you. They live in the dark and hide from the flares. I think they are dropping "acid bat guano" on you because if it touches you, *you are dead*. Sending off a flare gives you enough time to run safely under them. If you feel *daring* you can run under most of them without a flare.

You set off dynamite charges by pressing yet another key. Get close to one of the mounds you can't jump over, set your charge, and then *turn and run like heck* the other way! If you place the charge in the right place, the mound will be gone and you can continue along that passage.

The lower left corner of the screen shows the items you have picked up along the way. At the bottom of the screen, a red "thermometer" gauge shows how much air you have left. There are plenty "air pump bellows" throughout the cave, but you will have to watch the gauge and move about carefully to avoid running out of air.

As you play, you will learn where the dead end tunnels are. Sometimes, you can pass by one of the pumps if you have plenty of air and you know you are coming back that same way, anyway.

You also must watch out for the smaller mounds that shoot out puffs of steam that can kill you. Some of the small holes will also kill you if you step in them.

In Spelunker, you earn extra lives by scoring points. As you get deeper into the *Ropes*, and then the

*Falls*, the points you earn increase.

This game is so challenging that you will keep coming back to it as you learn all the twists and turns. I suppose you think I am going to tell you how to get through the Ropes and the Falls? Guess what! You're wrong. Have fun with this one.

Oh, one more thing. The disk will run a demo if you just let it load and go (boot without BASIC).





# A-T-A-R-I

## ANSWERS, Tips And Relevant Information

### Paul Alhart (AFED)

This month I have several subjects to cover to bring things up to date. In the December '91 issue of AIM, I introduced MagiCalc XL. You can find this program on the March '92 AIM 8-bit DOM. Due to popular demand, I have since created a new version of MagiCalc. MagiCalc 800 looks exactly like MagiCalc XL, but was written for those of you using Axlon-type memory upgrades (Switching address \$CFFF). As an added bonus, I have included a short BASIC program with MagiCalc 800 that allows you to pick the extended memory bank in which MagiCalc 800 will hide itself.

MagiCalc 800 is shareware and appears on this issue's AIM DOM (June '92). As with MagiCalc XL, you can also order directly from me. The registration fee is \$6. For \$10, I will include the complete, heavily commented, MAC65 source code. Please specify which version (XL or 800).

I want to take this opportunity to say "Thank You" to Jake Olbrich of RACC. In my A-T-A-R-I column (AIM Feb. '92) I told you about my handicapped friend, Jeff. In response to that article, Jake donated several disks of educational software. He also included valuable information regarding other sources of educational software that can be used by the disabled/handicapped. This is just one more example of the thoughtfulness of people in the Atari community. Thanks again, Jake.

In March '92, I told you about The Atari Federation Hackers Challenge and The Challenge appeared on the AIM disk that month. If you are still working on The Challenge you may want to stop reading here, for I am about to divulge its deep, dark, diabolical, hidden secrets.

You must have noticed things were not right when you first looked at the disk's directory from DOS and found nothing there but DUP.SYS. The Challenge makes use of several hidden directories. They are accessed by

changing the values stored in memory locations 4226 LSB and 4229 MSB to point to the sector where the directory is to be found.

Their default values are 105 and 1. Therefore, the start of the Atari default directory is located at sector (105 + 1\*256) or sector 361. This is the directory where I put DUP.SYS. Everything else is in other (hidden) directories.

After the title screen appears when you boot from this disk, you are given the prompt to *Let The Challenge Begin*. At that time, press and hold down the START key. At the READY prompt you will be able to LIST the program.

Line 500 of the listing gives you the first piece of the secret message *The Atari Federation*. Line 510 tells you (in a rather cryptic way) where the current directory is located, how to get to the next directory, and the name of the program you will be using. Type `POKE 4226,110:LOAD "D:CLUE"`.

If you RUN "D:CLUE" you will be presented with a Graphics 7+ screen which will just make you see red. Instead, after CLUE has been LOADED, LIST it and change the first number in LINE 35 from 64 to 4. This changes color register 1 to a gold color. Also, it helps to change LINE 40 to read `FOR I = 1 TO 2000: NEXT I: STOP`. This keeps the picture on the screen longer and keeps the program from sending you back to DOS.

Now type RUN to see the next part of the secret message—*Brings You*. Now LIST the program again and get your next clue from LINE 42. Type NEW to clear CLUE from your computer's memory and set up to use the directory hidden at sector 720. Type `POKE 4226,208:POKE 4229,2`.

Now you are ready to ENTER "D:ROOM". Don't type RUN yet or you will get the message ERROR- 9 AT LINE 9. LIST the program and you will see why. There is nothing but DATA statements and the instruction `A$` in LINE 9. The trick here is that you are not in the ROOM you ENTERed anymore. ROOM is a magical little BASIC program written with Immediate Mode commands (No line numbers).

ROOM DIMensioned, and put the next part of the secret message into, A\$. It also changed the directory locations again and sent you to another ROOM, the program you just LISTed.

As soon as you ENTER "D:ROOM" type `?A$` or type GOTO 9 to see the third part of the secret message—*More For Your Atari*.

But what about all those DATA statements? And where is the next clue? Change line 9 to `9 READ D: ?CHR$(D);:GOTO 9`. Now type RUN and you will see that all those DATA statements are the next clue, which is RUN "D:around".

The problem here is that DOS won't allow you to have lowercase characters in a filename. To get around this, `POKE 3822,123`. This patches DOS to allow all alpha characters from A-Z and a-z. Now type RUN "D:around" and you are on the final leg of your quest. Answer all the questions correctly and you are done. The correct answers are:

720 Sectors, 5 Players (The missiles can be combined to form a 5th player.), 2 Years, 64 Files, 65536 Bytes, 6502 CPU, 14 = \$0E, 00 PAGE

That wasn't so hard now, was it? I had a lot of fun putting together The Challenge. I had even more fun listening to the exploits of my fellow club members as they tried to solve it. Most of them learned a great deal about their Atari 8-bits in the process. I hope you did, too.

By the way, did you really want to see what was in all those hidden directories? Without DOS, you couldn't just ask for a directory list like you are used to doing. Instead, type in and RUN this short BASIC program to see the contents of any directory you are using.

```
10 DIM A$(20):OPEN #1,6,0,"D:*.**"  
20 TRAP 30:INPUT #1,A$:?A$: GOTO 20  
30 CLOSE #1
```

Paul V Alhart  
524 North Zee St.  
Lompoc, CA 93436



# 

## 

DAVID ELMORE  
ACCT

I began my Wargaming hobby almost 20 years ago. Fifteen years ago, I purchased a board game called "Third Reich." Ten years ago, I purchased my first Atari computer system, using it mostly as my opponent for wargames. When I read last year that Avalon Hill was releasing Third Reich for the Atari ST, I was more than happy. Last month, it was finally released. I'm thrilled, but I'm not sure you will be.

### 

Let me begin by stating this is graphically the finest computer board game I have ever seen. The designers have captured the game board almost exactly on the screen, down to the Combat Result Charts in the corners.

The map is of Europe from Spain in the West to the Ural Mountains of Russia in the East. Scandinavia is in the North, while the Sahara Desert of North Africa is in the South. The map scrolls 8 different directions using arrows located on the bottom of the screen.

You may split the screen, moving either the top or bottom half independent of the other. Other icons on the screen allow you to call up information

about the game in progress to either screen half.

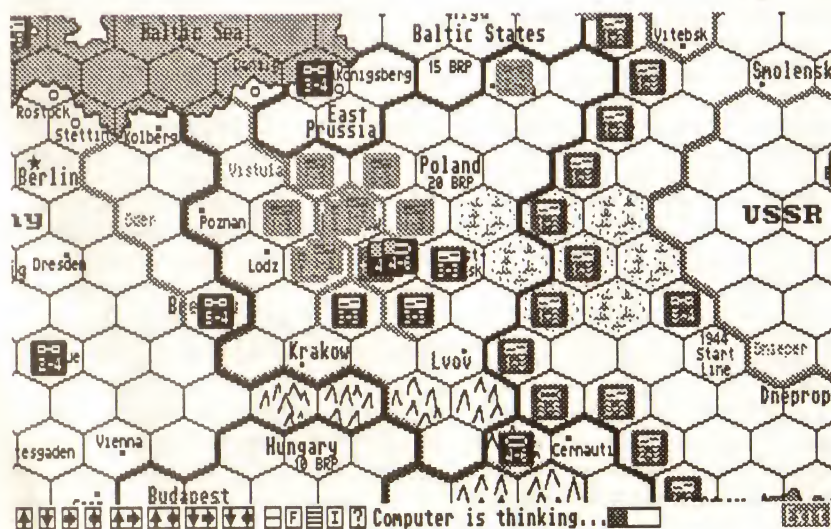
So, you can have information displayed on the top of the screen while you move your units on the bottom of the screen. You may also compress the map to get "the big picture," but I've found this to be useless. If you're paying attention, you'll already know what the "big picture" is. The Unit colors are bright; the map is very readable.

### 

Game play is almost exactly like the board game. All the turn phases are still here. Each country (Germany, Italy, Great Britain, France, U.S.S.R. and the United States) take turns, first deciding what type of operations they wish to carry out (Pass, Attrition or Offensive) on each front (Western, Eastern or Mediterranean). Then, they move their units, conduct combat, build and place replacements, and finally conduct Strategic Redeployment.

Unlike other games about the Second World War, this is no abstraction. The capabilities of each country are represented by its Basic Resource Points. These allow a country to build units and conduct operations. When you run out of points, you can't go on the Offensive or build replacements, so you must manage your resources wisely. Capturing other countries builds up your BRP base, making you stronger, but Bombers and U-Boats destroy BRPs, knocking you back down.

There are four scenarios in the game: the 1939 Scenario (Fall '39 to Summer '42), the 1942 Scenario (Spring '42 to Winter '44), the 1944 Scenario (Spring '44 until Berlin falls), and the Campaign Scenario (Fall '39 to Summer '45). Depending on the scenario, you can play the game against the computer in about 4-6 hours, longer against a human opponent.





## Nice Touches

While playing against the computer, you hear pleasant "Thinking Music" when the computer is thinking. When the music stops, the computer begins to take its turn. During the Strategic Warfare phase, and during the game results, you listen to a great Boogie Woogie. The music is available on machines with one meg or more memory. On a basic 512K machine, the game-play is silent.

This game feels like the original board game. You can see yourself moving the counters across the board, sipping Hot Cocoa while planning your next move. The die roll has been eliminated from combat. In its place, the appropriate Combat Odds column is displayed in the lower right corner and a bar slides up and down, stopping randomly on a result. The computer automatically keeps track of supply for you, surrounding units to destroy them through lack of supply is so much easier to keep track of. And you cannot make a mistake moving or in combat—the computer won't let you. *I really like this game!*

As far as game play goes, the first couple of times you play the computer, it'll sometimes do things you never thought of. It doesn't play very smart, pretty much straightforward. It doesn't even do things it should. But if you make a mistake, it will exploit it. If you leave a hole in your lines, you'll have enemy units swarming in your rear areas the very next turn!

## Documentation

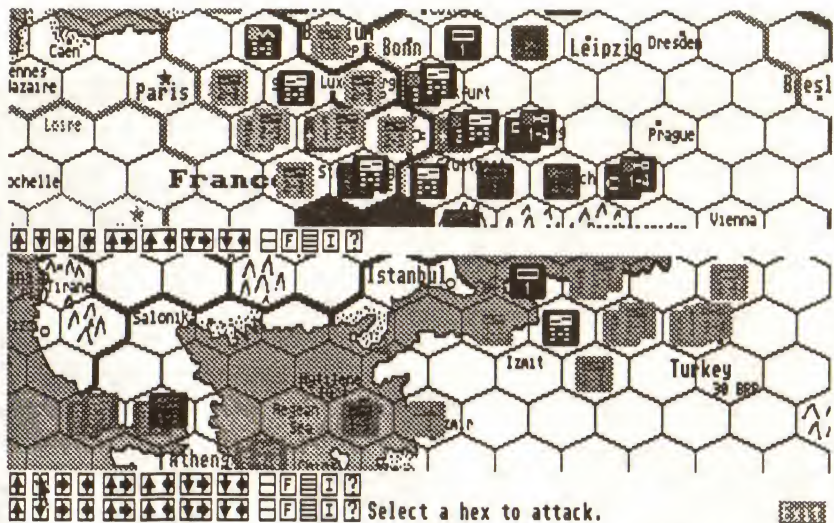
On the down side, if you don't know the board game, you're in trouble. First off, the Instruction Manual leaves *much* to be desired. As a matter of fact, it tells you if you really want to learn how to play this game, Avalon Hill recommends you either buy the Player's Manual or a copy of the board game itself! Put simply, without a copy of the 4th Edition Third Reich rules, you will be lost.

The instructions fail to tell you things like Terrain affects defensive combat values; or who the German minor allies are; or how Air and Naval combat works. Or even how to do Breakthrough and Exploitation, this being a *major* part of combat.

The instructions also fail to tell you how to get various country information to appear on the screen. Matter of fact, the docs fail to mention this information exists at all! I discovered it by playing around with the Information icons. Basically, the instructions fail to tell you not only how to play the game, but how to use the program. I strongly recommend buying a copy of 4th Edition rules from Avalon Hill through the catalog included with the program; the cost is \$5.

## Problems

Also, I've had the game lock-up or bomb. Three times on a one meg machine, the game has bombed.



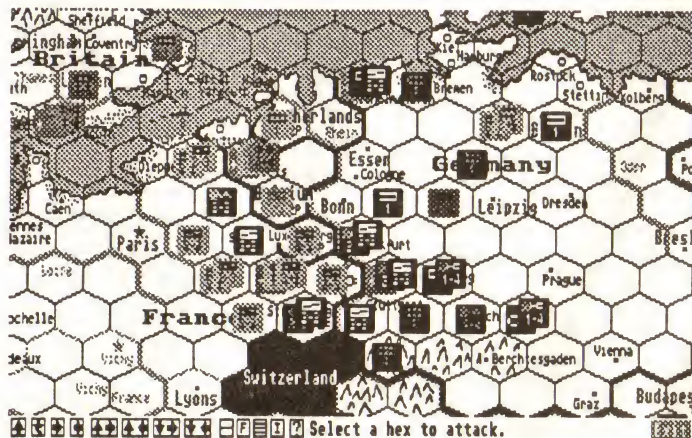
The game has locked up numerous times on both the one meg and a 512K machine. Clicking the left mouse button starts the game back up again, but the computer opponent has been removed. You can place him back in the game, but this is an annoyance. Saving the game often is a way to make the lock-ups and bombs less aggravating, but for a commercial piece of software, we shouldn't have to worry about this kind of thing.

I've personally called Avalon Hill on the phone and FAXed them a letter with my gripes. I feel they have a quality product that has a few bugs left in it. They seemed to be responsive to my call and letter, thanking me for notifying them of my complaints and letting me know they are working to fix the problems.

## Summary

In closing, if you know Third Reich and are willing to overlook the documentation problems, I strongly suggest buying this game. I've had hours of fun with it, against both a human and computer opponent. If you enjoy computer wargaming, are willing to spend \$5 to get a complete set of rules, and can overlook the software problems, buy this game. You'll like it.

But, if you're a casual game player, you'll probably be too frustrated to enjoy the game.







## Tim Bowles CASTE

When I was a kid, I used to play Poker with friends. We used pennies as chips and it was our way of keeping score. We didn't know exactly how to play, so we sometimes made up our own rules, like "My married pair (King and Queen) beats your two Jacks." Nowadays, the friends are not always available to play, so I sit down with my Atari ST and play Realistic Video Poker from Micro Creations.

### What's the Deal?

According to the manual, Realistic Video Poker (RVP) "was designed to be as close to the casino game as possible in both play and graphics." I have never played a real video poker machine, but this game seems realistic to me, except for the fact I have not been able to collect my winnings. (grin) RVP uses keyboard input rather than the mouse and this works well. There is no time-consuming "cute" stuff like picking up a coin with the mouse and dropping it into the slot.

You start out with a bank roll of 80 coins with which to play. You may insert up to five coins into the video poker machine. The payoff chart at the top of the screen is highlighted according to how many coins you insert. For those who like to play for the big bucks, pressing a key automatically inserts five coins and deals the cards.

After the computer deals the cards, you may choose which cards to hold by pressing 1 through 5 on the keyboard. If you get a hand that's worth something, the computer tells you with an on-screen message such as Straight, Two Pair, etc. After you have chosen which cards to hold, pressing the Space Bar discards the rest. RVP then deals the new cards and will payoff on any winning hand as shown in the on-screen chart. When you win, you hear the digitized sound of coins falling out of the machine. Nice touch.

### Other Features

If you wish to try to double your winnings, you can turn on the Double Down option. When you get a winning hand with this option on, you are asked if you want to try for Double Down. If you agree, the computer will then deal one card and you must pick a card of greater value to win. If not, then you lose it all.

If you feel like the machine you're using is not treating you right, you can switch to a new video poker machine with a freshly shuffled deck of cards.

High scores are listed in the "Tycoon Top Ten." There is also a Payout Report which keeps running totals on winning hands and how many hands have been played thus far.



|                         |              |              |            |              |              |
|-------------------------|--------------|--------------|------------|--------------|--------------|
| ROYAL<br>STRAIGHT FLUSH | 2500<br>2500 | 1000<br>1000 | 750<br>750 | 1200<br>1200 | 4000<br>4000 |
| 4 OF A KIND             | 1500<br>1500 | 1000<br>1000 | 750<br>750 | 1200<br>1200 | 4000<br>4000 |
| FULL HOUSE              | 1000<br>1000 | 750<br>750   | 500<br>500 | 1000<br>1000 | 3000<br>3000 |
| FLUSH                   | 500<br>500   | 250<br>250   | 125<br>125 | 500<br>500   | 1500<br>1500 |
| STRAIGHT                | 400<br>400   | 200<br>200   | 100<br>100 | 400<br>400   | 1200<br>1200 |
| 3 OF A KIND             | 300<br>300   | 150<br>150   | 75<br>75   | 300<br>300   | 900<br>900   |
| 2 PAIR                  | 200<br>200   | 100<br>100   | 50<br>50   | 200<br>200   | 600<br>600   |
| JACKS OR BETTER         | 100<br>100   | 50<br>50     | 25<br>25   | 100<br>100   | 300<br>300   |

|                       |         |                    |        |        |
|-----------------------|---------|--------------------|--------|--------|
| HOLD                  | HOLD    | HOLD               | HOLD   | HOLD   |
| 6<br>♠                | 7<br>♣  | 7<br>♠             | A<br>♠ | 7<br>♥ |
| 3 OF A KIND           |         |                    |        |        |
| Credit :<br>Deposit : | 55<br>5 | Played :<br>Paid : | 5<br>0 |        |

## Conclusions

The RVP manual is nothing more than a sheet of paper with a quick explanation of the game and a definition of hands. It gives no video poker strategies except to say get "one of the many books available on how to play video poker."

RVP is not copy protected, so it can be installed on a hard drive. It runs on any ST in low resolution only. Also, RVP has no problems with being DC Squished.

Realistic Video Poker is fun to play and would be good practice before you go to a real casino. It's better to lose imaginary money than real money.

Micro Creations, 4609 Millbrook Way, Bakersfield, CA 93313, 1-800-582-6351

NOW  
SHIPPING  
Ver. 1.2x

## Micro Creations

Presents

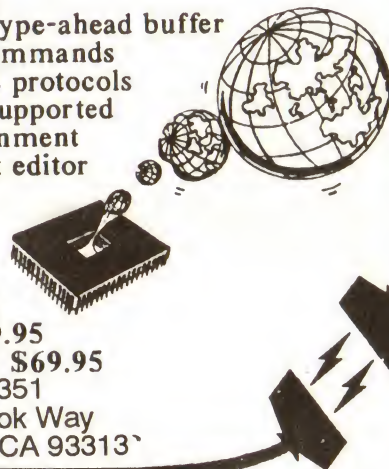
# G.I.M.E. Terminal G.I.M.E. B.B.S.

G.I.M.E. is the best telecommunications programs on the market. The terminal provides many features that other terminals do not offer. Our multi-line BBS has a user friendly sysop GEM interface.

### Features Include:

Largest built-in type-ahead buffer  
Over 90 script commands  
Background XYZ protocols  
Auto-Z modem supported  
Full GEM environment  
Full-featured text editor  
Multiple buffers  
Graphics editor  
Foldered dialer

Terminal \$49.95  
BBS (1 line) \$49.95  
BBS (Multi-line) \$69.95  
1-800-582-6351  
4609 Millbrook Way  
Bakersfield, CA 93313



## LogoLibrary™

LogoLibrary consists of over 1060 images for desktop publishing. Includes over 600 printer's logos for business advertising, stationery, disk labels, etc. In addition there are 460 symbols and graphics for charts, posters, shirt designs, signs, etc. All images are hi-res 300 dpi graphics in .IMG format for PageStream, Touch-Up, Calamus, Wordflair, etc. Includes 6 d/s disks and 72 page directory. \$39.95



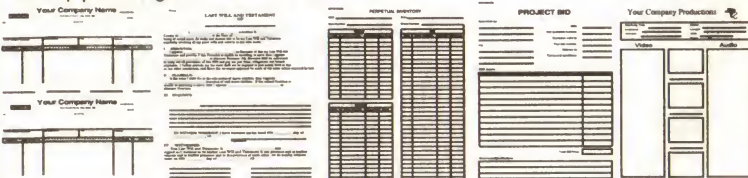
Categories include Animals, Astrology, Barbershop, Building Trades, Business, Cars, Farming, Food, Gas, Gifts, Holidays, Home Furnishing, Industry, Insurance, Landscape, Music, Pets, Religion, Real Estate, Services, Sports, Signs, Statistics, Symbols, and Travel.

## Time Savers!

### Forms and Layouts!

## Qwikforms™ for PageStream™

The key to quick and easy, professional-looking forms and documents is Qwikforms™ --the only package of forms with over 100 different, adjustable layouts. Just choose the one you want, insert your name, logo, or text, and print. Business forms include invoices, inventory control, real estate forms, fax forms, job estimates, applications, organizers, ledgers, charts, and more. Page layouts include newsletters, menus, flyers, letterheads, business cards, brochures, booklets, envelopes, press releases, resumes, and video production forms. Legal forms include wills, deeds, claims, bill of sale, power of attorney, etc. Personal forms include announcements, cards, architectural symbols for home planning, mail lists, invitations and many other unique and unusual uses of PageStream. Includes 2 free disks of PD clip art and other useful desktop publishing accessories. \$39.95



## Templicity™ LDW Users! VIP Users!

### Home and Business Spreadsheet Templates

Now you can instantly use your spreadsheet to do your bookkeeping, income taxes, calculate mortgage rates, evaluate a car loan, estimate the maximum affordable price for property, balance your checkbook, design a savings program for education, create invoices, count calories, forecast income, and much more! This package of 104 ready-made spreadsheet templates covers everything from accounting and budgets to inventory and real estate. Interactive income tax templates are included and updated each year for only \$5.00. Available in separate versions for LDW Power, Masterplan, and VIP Professional. \$39.95

"Templicity is an excellent value and I highly recommend it." *Amiga World*, October 1990  
"...a wealth of tutorial material..." *ST Informer*, Sept. 1988  
"Templicity gives you ... a lot for your money." *MACWORLD*, August 1990



To order by mail, send check or money order to:  
(CA res. add 7 1/4 %)  
Please specify which computer and software version you have.

**The Sterling Connection**  
Box 4850  
Berkeley, CA 94704



**Cliptomania™** 10 full d/s disks of hi-res PD clip art in .IMG format for use with PageStream, Touch-Up, Calamus, Wordflair, and any program that can read .IMG files. Categories include Advertising, Animals, Cartoons, Fantasy, Holidays, Letters, People, Restaurant, etc. Over 360 images! \$39.95

For orders only, call toll free  
**1-800-624-2355**  
(8 am to 5 pm PST)  
For information call 1-510-655-2355

Any 2 of above--\$69.95  
Any 3 of above--\$89.95  
Shipping--\$3.00 (USA)  
All other--\$5.00



# TripLink

## A BBS and a Whole Lot More

**David Scarpa**  
**WMAUG**

There are quite a few BBS systems available for the Atari ST. When I was looking for a good, solid BBS for our users' group, I decided to try some Shareware efforts.

There are numerous commercial BBS software programs. But, I believe in supporting shareware whenever possible, it being the real backbone of our software line. This search turned me to the online services, from which I downloaded and tried several BBS systems. None of them satisfied what I was looking for—ease of use for the users and ease of setup for me. None of them, that is, until I happened onto TripLink 3.5. I am now using version 3.7 and I am a registered user.

### More than a BBS

The first thing that attracted me to TripLink was that it is more than just a BBS. Sure, it has that capability in spades, but it is also a front end file manager.

TripLink gives you control over your entire system through drop down menus and a command line environment. Via this software, you can run programs, move files and perform all the basic things you need to keep your system humming.

One of the very best things going for TripLink is the ease with which it is set up, a definite plus for Sysop novices such as myself.

The initial set up of the BBS requires you to create a TripBBS directory and place TRIPEDIT.TOS and TLINKxxx.PRG inside of it. You then must run TripEdit, answer the basic questions regarding your particular system and hit return. You then copy all the Data, Menu, and AD LZH files into their own folders. Finally, you run the TripLink main program and you're done! The initial BBS setup takes about three minutes and the program is automated to do most of the setup itself!

### Features

An easy to set up BBS would be nothing if it did not have features, and TripLink does have lots of features. The newest version supports two sets of up to 32 message bases. The message bases set themselves up when you run TripEdit and answer a few parameter questions. These bases have all the usual features, including extended messages for long-winded folk, like myself.

In addition TripLink supports 32 file areas, all of which can be linked to specific message bases. The program uses the external XYZ program (itself a Shareware endeavor by Alan Hamilton) to allow Xmodem, Xmodem 1K, Ymodem Batch, Zmodem and Zmodem Batch downloads. Users with a specific access level can also be allowed to extract files from archives online.

TripLink also supports online games very nicely. I use both the Games area and a Doors Interface Program (DIP) to allow usage of games designed for FoReM and Turbo BBS systems. You can have as many as 32 games online in the Games area, and that's not including the ones handled by the DIP!

One of the nicest features of TripLink is the built-in TinyTerm program. With it, Chat mode is clean and effortless. TinyTerm can be used as a mini-terminal program, allowing you access to other BBSes. Using TinyTerm to connect to other TripLink BBSes gives you the ability to pull the user on the other end inside your own BBS. Also included in the latest version of the program are TRIPHOOKS. These are global switches that allow you to do numerous nice little tailoring things on your board.

This is just the tip of the iceberg when it comes to describing the features of TripLink. There are many others. While FidoNet and Binkley Terminal support is presently lacking, it could probably be added by an enterprising Sysop. If you are looking for a BBS with an easy to use interface, that allows for easy setup, and has all the message bases and file areas you could need, I heartily recommend that you consider TripLink. The program can be downloaded from the online services or from the author, Mike Caldwell, on the TripLink Support BBS at (916) 349-8517.



# CSS Super E-Burner for the Atari 8-bit

## A First Impression

I was overwhelmed with excitement the day the UPS man delivered the box from Computer Software Services. I had very good reason to be. After all, I had recently ordered one of their most technically oriented devices, the "Super E-Burner." This device reads and programs (E)rasable (P)rogrammable (R)ead (O)nly (M)emory or EPROMs for short.

Whoa! That's jumping in a bit too fast. How about we take a few steps back and run over some basic concepts first? OK, here goes...

### ROMs vs EPROMs

Inside your computer is a ROM (Read Only Memory) chip which holds the instructions that tell your computer what it is and how to operate. This Operating System chip (OS ROM) is a permanent component which does not need energy to maintain its data integrity. In other words, it doesn't go blank when the power is removed like a RAM chip.

The OS ROM chip is programmed with instructions when it is manufactured, and those instructions cannot be changed at a later time. An EPROM chip also retains its programming when power is removed, however, its programming can be changed.

An EPROM has a small window in the center of the top side of the chip. Erasing an EPROM is done by simply exposing this window to a high intensity ultraviolet light (Don't ask how, or we'll be here all day talking about transistor gate depletion levels and photo-electron velocities). But programming (commonly called "burning") an EPROM chip requires a special device. Enter the Super E-Burner.

### Let's Get Physical

I had never seen a picture, nor heard a description of the physical aspects of the Super E-Burner. All I knew was that it plugged into the cartridge port of the Atari 8-bit computer and was incredibly fast.

After tearing the shipping box open, I pulled out a rather odd-looking device. The main unit of the Super E-Burner is a 5"x5" PC board which holds one power connection, four IC chips, 48 miscellaneous electronic parts, one 34-pin port and one ZIF socket.

What's a ZIF socket? Well, it stands for (Z)ero (I)nsertion (F)orce. It's an expensive socket that puts no pressure on the pins of an inserted chip. The socket has a small lever on its side. After placing a chip in the socket, pressing the lever down causes a metal plate in each hole to clamp down on the pins, thus making a solid electrical contact. Coming off the 34-pin port is a two foot ribbon cable that connects to the cartridge in-

terface board. This board resembles a disassembled game cartridge, and is used in a similar manner.

### Using the E-Burner

Despite the rather sparse and inadequate documentation which accompanies the Super E-Burner, operating the device is quite simple. The cartridge interface board plugs into the cartridge port and you then boot your computer with your favorite DOS. (For reasons unknown to myself and Bob Puff, this device does not work properly with SpartaDOS X). Upon entering the cartridge via a DOS command, the following menu screen appears:

```
+-----+
| CO:01 NU:00 File:                |
| Prom:0  Loc:00000 Write:00 Read:00 |
| Type:      Retries:0000 Speed:1   |
+-----+
|                                     |
|           The SUPER-E BURNER 0.7   |
|       By: Robert Puff  (C) 1991 by CSS |
|                                     |
| [A] 2732      25V                  |
| [B] 2732A     21V                  |
| [C] 2764      21V                  |
| [D] 2764A     12V                  |
| [E] 27128     21V                  |
| [F] 27128A    12V                  |
| [G] 27256     12V                  |
| [H] 27512     12V                  |
| [I] 27C101    12V                  |
| [J] 27C301    12V (or mask ROM)    |
|                                     |
| Select PROM type >                |
+-----+
```

From this menu, the EPROM size and programming voltage is entered. On this subject, the docs say nothing more than "Select the proper EPROM type. An incorrect selection of types can damage your EPROM."

I recommend you find some other references to help determine the proper setting.

Once the EPROM type is chosen, the main menu is presented:

```
+-----+
|           Select Operation:         |
| [R] Read EPROM   [B] Burn EPROM    |
| [V] Verify EPROM [E] Verify erase  |
| [N] # of copies  [Q] quit to DOS   |
| [S] Change speed [ESC] New PROM size|
| [1-9] Disk directories              |
|                                     |
| Please Select >                    |
+-----+
```



Although these menu selections are basically self explanatory, we'll run through them quickly. [R]ead copies the information from a programmed EPROM onto a disk file. [B]urn writes information from a disk file onto a blank EPROM. [V]erify compares information on a programmed EPROM to a disk file. [E]rase checks to make sure an EPROM is blank. [N]umber sets the number of EPROMs to be burned from a single disk file. [Q]uit exits to DOS. [S]peed alters the programming speed for older and slower EPROMs. [ESC] goes back to the previous menu.

### Documentation Details?

Four stapled pages accompany the Super E-Burner consisting of a title page, a warranty page, a VERY oversimplified page of instructions and a page showing the orientation of different sized chips in the ZIF socket. I immediately called CSS and asked Bob Puff, "Is this it!?" He assured me they would be revising the documentation soon and talked me through the necessary concepts and instructions.

Within the documentation, a handwritten note says that CSS is working on a built-in editor which will support XE memory. This would make the Super E-Burner one of the most powerful firmware devices I've seen. A ROM chip could be read, disassembled,

modified, and rewritten without loading up any other programs. Bob said the revised documentation would be included with the enhanced editor.

### Observations

Now that I've had the Super E-Burner for about a month, I find myself rather comfortable with it. I have managed to backup every single ROM chip in the house onto my hard drive. That's over thirty chips including nine different Operating Systems for my 8-bit!

But the real fun of owning an EPROM burner is in firmware modifications. By disassembling, modifying and rewriting parts of ROM code, I've managed to make my 130XE run in high speed mode with my US Doubler drives, regardless of what disk/DOS I boot; I've made a stock 1050, US Doubler 1050 and an XF551 all respond to drive numbers higher than D4; and I'm working on modifying my SpartaDOS X cartridge to use the standard SIO vector so it will work with a Multiplexer.

All things considered, I am very impressed with the Super E-Burner. It is a well built, extremely fast, and (so far) reliable unit. In my opinion, it is well worth the price (which, as of this writing, is \$169.95 + \$8 S/H). Kudos to Bob Puff and the gang at CSS!

ATTN:  
PAGESTREAM  
USERS

# Introducing...

## The Revolutionary Mega-Kern®

*Auto-kerning has arrived at last!*

- Kern over 1000 kern pairs in less than 10 minutes, perfectly, without the usual headaches of creating kern pairs by hand!
- Creates kern pairs for either PageStream .DMF or Adobe Type 1 format fonts.
- Calculates optimum white space automatically.
- Mega-Kern Lite available for users who only need to kern PageStream .DMF fonts. (Great for Ultrascript users.)

Only  
\$79.95

**MegaType**

Lite  
\$49.95

P.O. Box 645 ★ South Bend, IN 46624 ★ (219) 288-7468

Programs require ATARI ST or TT computer system.

All trademarked or registered names used are the property of the respective company.

\$39.95  
Per Pack

**MegaType**  
**FACES**

**MAKHANA**  
**PAK 1** **Benghazi Bold**  
pcg unical  
**SATURNUS**

**PAK 2** **Francisco**  
**Fraktur Black**  
**Wessex Gothic**

**PAK 3** **Copper Black**  
**PAK 4** **Marseille X-Bold**  
**Anaheim Bold**

**PAK 5** **Carolina Script**  
**Smith Script**  
**Shoe Font**

**PAK 5** **EXPERT**  
**Kleinneman**  
**Retro**

**PAK 6** **Garmonda**  
**Garmonda Italic**  
**Garmonda Bold**  
**Garmonda B-Italic**

High Quality Hand-  
Crafted Fonts for  
Atari, Amiga, PC  
Compatibles, and the  
Macintosh.  
All Fonts come in  
Calamus,  
PageStream, Type 3  
& Type 1 (PGS 2.1)  
formats.

**PAK 7** **Dynamite**  
**BUSORMA**  
**GAZEBO**

**NEW!**



# THE GOOFY GURU

## That Pesky 8-bit Disk Drive Pad Problem

Charles Kelly  
(SNACC)

The Goofy Guru could have avoided a lot of disk drive problems if he had known this trick before—and now you can avoid them, too. When the pressure pad goes bad on a disk drive, you have all kinds of read errors and other hassles. And a company whose product is found on more desktops than IBM has the perfect solution. They recently changed a minor part of an important product that will provide the perfect replacement. It is the BIC pen.

Now, folks, please don't get cheap and use any pen you happen to have lying around. You want a new pen that has not yet been chewed on. Chewing on a pen will ruin the surface of the part we want. You are going to use the little piece that covers the end opposite the ball point. It is the *perfect* size for replacing just about any pressure pad, for any single-sided disk drive.

### The Procedure

Just remove this "plug" from the pen and press fit it into the pressure bar on your drive. About the only problem is on a Tandon mechanism 810 drive. For this drive, you should drill a small 1/8-inch hole at about the same position as the old pad. Place a small board under the pressure arm to protect the drive head on these drives. Be careful. Don't drill very deep at all. You can use a small knife to expand the hole safely. All others—including the Trak, Indus, MPP 810s, 1050s, etc.—will already have such a hole where a very similar piece was fitted.

What makes this repair possible is a change in the plastic piece on newer BIC pens that is pretty close to the plastic pad that came with these drives. The change is important because you need a fairly hard plastic that will still not gouge holes in your disks.

A little problem like this can lead to foolishly sending your drives away for repair. Simply removing the cover and opening the drive up is usually more trouble than the rest of this repair. Just keep in mind that covers on Indus and Percom drives slide off while the other drives' covers usually pull off in two halves.

Charles Edward Kelley  
27 N. 2nd Ave. E. #201  
Duluth MN 55802-2122

[The Goofy Guru series originated in the Southern Nevada Atari Computer Club newsletter and continues to irritate all. Topics covered are varied and obscure. In other words, this column is devoted to topics no one else seems to write about.]



# Spreadsheet Design

Michael Bennett

Effective spreadsheet design includes the arrangement and format of cell entries, the grouping of cell entries into sections and the use of formulas so the spreadsheet can do the job for which it is prepared. Screen appearance, ease of data entry and printed reports are all purposes for design.

Figure #1 is an example of a spreadsheet that was entered with little attention to design.

| FIGURE #1 |                  |       |       |        |
|-----------|------------------|-------|-------|--------|
| A         | B                | C     | D     | E      |
| 1         | Car Wash Profits |       |       |        |
| 2.        | Fri nite         | Sat   | Sun   | Total  |
| 3cars     | 12               | 24    | 19    | 55     |
| 4price    | 2.20             | 2.20  | 1.95  |        |
| 5sales    | 26.40            | 52.80 | 37.05 | 116.25 |
| 6soap     | 8.10             |       | 4.15  | 12.25  |
| 7sponges  | 3.85             |       |       | 3.85   |
| 8signs    | 3                |       |       | 3      |
| 9expenses | 14.95            | 0.00  | 4.15  | 19.10  |
| 10profit  | 11.45            | 52.80 | 32.90 | 97.15  |

Figure #2 shows the same spreadsheet as Figure #1, but it has been formatted and arranged so it is easier to understand. These design features can be incorporated either when the spreadsheet is first entered or after the basic data has been entered and the calculations performed. You can save time, however, if you pay attention to the design of your spreadsheet before you enter it.

Figure #2 shows all dollar amounts with two decimal places and dollar signs (some spreadsheets do not have the dollar feature, but two decimal places still looks nice). Amounts that do not represent dollars are integers (no decimal places). Labels above columns are right justified with the numbers in the cells below. Different sections of the spreadsheet are separated and the column

labels are underlined to make it easier to read.

## Spreadsheet Uses

Spreadsheets may be used for many purposes. Your objective will

determine the design. The three major purposes for spreadsheets are record keeping, analysis and forecasting.

Record keeping applications are the easiest to design because they show only the most basic data with just a few calculations. Fig. #2 is an example of a record keeping spreadsheet.

Analysis applications usually build upon the record keeping

style of spreadsheet. In addition to simply recording data, though, they require you to analyze the results. Analysis applications often include functions such as finding percentages. Figure #3 expands on the previous example to include a percent of sales column.

Several formulas are included in column F to show each expense as a percentage of sales. Each formula divides the expense and profit by the sales amount. For example, the formula in cell F11 is E11/E8. The formula in cell F12 is E12/E8. Each of the formulas in column F use the cell contents of E8 as the denominator. When you copy formulas, you must be careful to specify whether the cell reference should be copied relatively or absolutely. Different programs use different methods for this, so check your instructions.

## Forecasting

Forecasting applications use estimates to forecast future results. This type of spreadsheet takes advantage of the program's ability to perform "what if" analysis. With "what if" analysis, the user changes the input data and analyzes the various results. When you design

| FIGURE #2   |                  |          |         |          |
|-------------|------------------|----------|---------|----------|
| A           | B                | C        | D       | E        |
| 1           | Car Wash Profits |          |         |          |
| 2           |                  |          |         |          |
| 3           | Friday           |          |         |          |
| 4           | Night            | Saturday | Sunday  | Total    |
| 5           |                  |          |         |          |
| 6Cars       | 12               | 24       | 19      | 55       |
| 7Price      | \$2.20           | \$2.20   | \$1.95  |          |
| 8Sales      | \$26.40          | \$52.80  | \$37.05 | \$116.25 |
| 9           |                  |          |         |          |
| 10Expenses  |                  |          |         |          |
| 11 Soap     | \$8.10           |          | \$4.15  | \$12.25  |
| 12 Sponges  | \$3.85           |          |         | \$3.85   |
| 13 Signs    | \$3.00           |          |         | \$3.00   |
| 14Tot. Exp. | \$14.95          | \$0.00   | \$4.15  | \$19.10  |
| 15          |                  |          |         |          |
| 16Profit    | \$11.45          | \$52.80  | \$32.90 | \$97.15  |

| FIGURE #3   |                  |          |         |          |          |
|-------------|------------------|----------|---------|----------|----------|
| A           | B                | C        | D       | E        | F        |
| 1           | Car Wash Profits |          |         |          |          |
| 2           |                  |          |         |          |          |
| 3           | Friday           |          |         |          | Percent  |
| 4           | Night            | Saturday | Sunday  | Total    | of Sales |
| 5           |                  |          |         |          |          |
| 6Cars       | 12               | 24       | 19      | 55       |          |
| 7Price      | \$2.20           | \$2.20   | \$1.95  |          |          |
| 8Sales      | \$26.40          | \$52.80  | \$37.05 | \$116.25 | 100.00%  |
| 9           |                  |          |         |          |          |
| 10Expenses  |                  |          |         |          |          |
| 11 Soap     | \$8.10           |          | \$4.15  | \$12.25  | 10.54%   |
| 12 Sponges  | \$3.85           |          |         | \$3.85   | 3.31%    |
| 13 Signs    | \$3.00           |          |         | \$3.00   | 2.58%    |
| 14Tot. Exp. | \$14.95          | \$0.00   | \$4.15  | \$19.10  | 16.43%   |
| 15          |                  |          |         |          |          |
| 16Profit    | \$11.45          | \$52.80  | \$32.90 | \$97.15  | 83.57%   |



| FIGURE #4        |                 |         |          |         |                  |
|------------------|-----------------|---------|----------|---------|------------------|
| A                | B               | C       | D        | E       | F                |
| Car Wash Profits |                 |         |          |         |                  |
| 1                |                 |         |          |         |                  |
| 2                |                 |         |          |         |                  |
| 3                | -----           |         |          |         |                  |
| 4                | INPUT SECTION   |         |          |         |                  |
| 5                | Price           | \$3.00  |          |         |                  |
| 6                | -----           |         |          |         |                  |
| 7                | RESULTS SECTION |         |          |         |                  |
| 8                |                 | Friday  |          |         |                  |
| 9                |                 | Night   | Saturday | Sunday  | Percent          |
| 10               |                 |         |          | Total   | of Sales         |
| 11               | Cars            | 10      | 20       | 15      | 45               |
| 12               | Price           | \$3.00  | \$3.00   | \$3.00  |                  |
| 13               | Sales           | \$30.00 | \$60.00  | \$45.00 | \$135.00 100.00% |
| 14               | -----           |         |          |         |                  |
| 15               | Expenses        |         |          |         |                  |
| 16               | Soap            | \$8.10  |          | \$4.15  | \$12.25 9.07%    |
| 17               | Sponges         | \$3.85  |          | \$3.85  | 2.85%            |
| 18               | Signs           | \$3.00  |          | \$3.00  | 2.22%            |
| 19               | Tot. Exp.       | \$14.95 | \$0.00   | \$4.15  | \$19.10 14.15%   |

the forecasting spreadsheet, you should place the input data that will change in a separate part of the spreadsheet. That way, you can change data easily. Other cells may refer to your input cells, so you can simply change the input data to see the results, instead of changing all the cells individually.

As an example of a forecasting application, suppose you want to forecast the results of changing the price charged for a car wash. See Figure #4 and notice the changes to make forecasting easier.

Cells B12, C12 and D12 contain an absolute reference to Cell B5. So, when the user changes the price in Cell B5, all of the results change appropriately.

Another way of designing this situation on a spreadsheet would be to label all the input values in a separate section and label the profits as the results section, as in Figure #5. It is often difficult to separate input values from the results. For example, the Percent of Sales column actually contains the results instead of the input data. Fig. #5 shows that the user may change any of the expenses, the number of cars, or the prices to easily see the resulting profit.

When a large spreadsheet contains separate

sections, it may be helpful to place separate column headings in each section. Fig. #5 can be displayed on one screen and probably does not need to have the column headings repeated in the Results section.

When you design a spreadsheet, you should enter information that will identify the spreadsheet to others who may view the report. You should also enter any other information that may be helpful to you. The upper left and right sides are good locations for such data entry. Proper design may also involve explaining the formulas, assumptions and inputs to be used. These explanations should be placed directly on the spreadsheet. Without explanatory notes, you may have to spend needless time reacquainting yourself with the spreadsheet when you return to it later.

Here are some good principles of spreadsheet design to help you produce effective spreadsheets:

1. Set objectives for the spreadsheet.
2. Plan and arrange the layout on paper first.
3. Set aside sections for the different parts of the spreadsheet.
4. Format the sections according to screen display considerations.

| FIGURE #5        |                 |         |          |         |                  |
|------------------|-----------------|---------|----------|---------|------------------|
| A                | B               | C       | D        | E       | F                |
| Car Wash Profits |                 |         |          |         |                  |
| 1                |                 |         |          |         |                  |
| 2                | -----           |         |          |         |                  |
| 3                | INPUT SECTION   |         |          |         |                  |
| 4                |                 | Friday  |          |         |                  |
| 5                |                 | Night   | Saturday | Sunday  | Percent          |
| 6                |                 |         |          | Total   | of Sales         |
| 7                | Cars            | 15      | 24       | 19      | 58               |
| 8                | Price           | \$2.00  | \$2.50   | \$1.95  |                  |
| 9                | Sales           | \$30.00 | \$60.00  | \$37.05 | \$127.05 100.00% |
| 10               | -----           |         |          |         |                  |
| 11               | Expenses        |         |          |         |                  |
| 12               | Soap            | \$9.00  |          | \$4.15  | \$13.15 10.35%   |
| 13               | Sponges         | \$3.85  |          | \$3.85  | 3.03%            |
| 14               | Signs           | \$3.00  |          | \$3.00  | 2.36%            |
| 15               | Tot. Exp.       | \$15.85 | \$0.00   | \$4.15  | \$20.00 15.74%   |
| 16               | -----           |         |          |         |                  |
| 17               | RESULTS SECTION |         |          |         |                  |
| 18               | Profit          | \$14.15 | \$60.00  | \$32.90 | \$107.05 84.26%  |

| Worksheet Range Copy-Move File Print Graph Data Macro Quit |                     |  |  |  |          |          |          |  |  |          |           |  |  |  |
|------------------------------------------------------------|---------------------|--|--|--|----------|----------|----------|--|--|----------|-----------|--|--|--|
| READY OK CALC BOLD END NOTE HELP                           |                     |  |  |  |          |          |          |  |  |          |           |  |  |  |
| B13: {B0} {W12} Bsum(B5..B12)                              |                     |  |  |  |          |          |          |  |  |          |           |  |  |  |
| BUDGET-A                                                   |                     |  |  |  | BUDGET-B |          |          |  |  | BUDGET-C |           |  |  |  |
| 1                                                          | PERSONAL BUDGET     |  |  |  | 1        | Jan      | Feb      |  |  | 1        | Total     |  |  |  |
| 2                                                          | Mary's Income       |  |  |  | 2        | 2,250.00 | 2,250.00 |  |  | 2        | 24,750.00 |  |  |  |
| 3                                                          | Tom's Income        |  |  |  | 3        | 3,150.00 | 3,150.00 |  |  | 3        | 34,650.00 |  |  |  |
| 4                                                          | Total Income        |  |  |  | 4        | 5,400.00 | 5,400.00 |  |  | 4        | 59,400.00 |  |  |  |
| 5                                                          | House Payment       |  |  |  | 5        | 1,775.00 | 1,775.00 |  |  | 5        | 19,525.00 |  |  |  |
| 6                                                          | Car Payment         |  |  |  | 6        | 650.00   | 650.00   |  |  | 6        | 7,150.00  |  |  |  |
| 7                                                          | Gas and electricity |  |  |  | 7        | 323.45   | 298.86   |  |  | 7        | 2,295.46  |  |  |  |
| 8                                                          | Telephone           |  |  |  | 8        | 187.23   | 213.00   |  |  | 8        | 2,115.33  |  |  |  |
| 9                                                          | Food                |  |  |  | 9        | 520.00   | 490.00   |  |  | 9        | 5,590.00  |  |  |  |
| 10                                                         | Insurance           |  |  |  | 10       | 340.00   | 340.00   |  |  | 10       | 3,740.00  |  |  |  |
| 11                                                         | Clothes             |  |  |  | 11       | 250.00   | 300.00   |  |  | 11       | 3,110.00  |  |  |  |
| 12                                                         | Others              |  |  |  | 12       | 480.00   | 450.00   |  |  | 12       | 4,845.00  |  |  |  |
| 13                                                         | Expenses            |  |  |  | 13       | 9,415.68 | 4,516.86 |  |  | 13       | 48,360.72 |  |  |  |
| 14                                                         | BALANCE             |  |  |  | 14       | 754.32   | 1,883.14 |  |  | 14       | 22,879.42 |  |  |  |
| 15                                                         |                     |  |  |  | 15       |          |          |  |  | 15       |           |  |  |  |



## ST/TT Disk

All files on this disk are created with Double Click Software's Self-Extracting ARC program DC SEA! To use these programs, simply double click the files. Then, click on Extract and select the drive/folder to which you want the extracted files saved. Click on Verbose to get a list of the files in each archive or Exit to abort.

Here's a short description of the files on the June '92 disk. For more complete docs, see the text files contained in most of these archives.

**ASTEROID.PRГ**—A great Asteroids game clone from the UK. Color only.

**AUTOCPU.APP**—Auto sets Mega/STE's CPU speed. Drops to 8MHz for "flaky" software, then jumps up to 16MHz with Cache when you exit back to the desktop. MegaSTE only.

**FMTCРX.APP**—Disk formatting CPX from Germany, with English documentation. You must have XCONTROLACC to use this extension.

**HCOPY.APP**—HCOPY from Germany is a disk copier that supports HD disks, 3.5" or 5.25" disks, up to 92 tracks and 21 sectors, backwards formatting for safety and virus protection. Shareware. Docs are in German, but the program is in English. Mono or Color, including TT resolutions.

**ICCA.APP**—I Can Capture Anything (ICCA) is a program to redirect output streams to files. You select the output device to redirect and the filename to which the redirected output will be stored.

**JCLABELD.APP**—An excellent label printing utility from the UK. Shareware. ST medium or high resolutions on ST/TT.

**JOUTE.APP**—Two player modem-to-modem tank combat game with a one player "practice" mode. ST low or medium resolution on ST/TT. Great graphics. Shareware from Canada.

**JUMBLE.APP**—ABC Jumble is an educational game that lets kids sort the letters of the alphabet after the computer jumbles them up. Point and click GEM interface.

**MANYGOGO.APP**—Similar to the Mac DA, this DA gives you your own personal GoGo dancer—up to seven of them, actually. For Adults ONLY. Do not use this DA if blatant male chauvinism or semi-nudity offends you.

**MNET103.APP**—Michtron NETwork by Jeff Wells networks your MBBS with other systems. Very easy to set up. Shareware.

**OPLACE11.APP**—Other Place is a one person asteroids-like arcade game. Mainly shoot and dodge with a little maze action. All ST resolutions.

**RUSSIA.APP**—Two utilities from Russia! A\_Format is a floppy disk formatter with some interesting options. BootInst installs a smart boot sector allowing you to enter time and date at bootup, continue boot process from Drive B and more. English prompts in both programs.

**SEARCHME.APP**—Word search puzzle generator. Save and load or print puzzles. Create custom word lists, use the supplied dictionary or use the dbWRITER wordprocessor dictionary. ST mono only on ST/TT.

**STARNUKE.APP**—StarNukers 1.02D, a two-player, real time, modem-to-modem space war game. ST medium or high resolution on ST/TT. Shareware.

## Mac/Spectre

Each AIM Mac/Spectre Disk of the Month is a double-sided disk packed with some of the best PD and Shareware programs available each month. The disks are available in either Macintosh or Spectre formats. All files are self-extracting Compactor Pro archives. Just double click to extract!

Here is a short description of the files contained on the June '92 Mac/Spectre Disk of the Month:

**AltCDEF**—This init modifies the scroll bars in all of your Mac's open windows to have double arrows at each end. No more moving back and forth from one end of the bar to the other when making fine adjustments!

**CarpetBag 1.1**—A utility that works in much the same way as Sultcase II or Master Juggler. That is, it allows you to use fonts and DAs without actually installing them in your System file. CarpetBag doesn't have as many features as the commercial programs, but it's a lot cheaper.

**SmartKeys 2.1**—Init/CDEV typist's assistant that can be configured to help prevent common typing errors, such as typing two capital letters in a row. It also can be configured to change standard quote marks to smart quotes. A very useful utility.

**eMACs 3.0**—The latest version of the popular eMACs text editor for the Macintosh. All the standard commands are supported and most commands can be chosen by either a mouse click or from the keyboard.

**Definitive Desserts 1.2**—A HyperCard 2.1 stack full of great dessert recipes. If you've got a sweet tooth, you'll find something you like here.

**Home Inventory**—Another HyperCard 2.1 stack. This one can help you keep track of all your stuff. Very nicely done and easy to use.



# DISKS OF THE MONTH

## Disk

**Stella Obscura**—In this archive you'll find a great 3D space shoot 'em up game. To get the 3D effect, you need to make a special viewer from a cracker box (really!). The docs include instructions for making the viewer.

**Bonk 1.2(b&w)**—In this game you "bonk" a little guy each time he pokes his head out. Trust me, it's more fun than it sounds.

**The Grouch**—The init in this archive places Oscar the Grouch from Sesame Street in your Trash Can. Each time you empty the trash, Oscar raises his head and sings. A very nice animation and lots of fun. You may find yourself deleting all your files just to watch him do his thing!

Readers can purchase this disk from their local AIM participating user group or by sending \$6 (\$5 +\$1 s/h) to Unicorn Publications, 3487 Braeburn Circle, Ann Arbor, MI 48108, or call (313) 973-8825 and have your Visa or MasterCard handy.

Please specify the June '92 ST, Mac or 8-bit Disk when ordering. When ordering the Mac/Spectre Disk, please indicate Mac or Spectre format.

## 8-bit Disk

Each AIM 8-bit Disk of the Month is a single-sided, single density "floppy" packed with software. To extract files in the ARC format, you need the UN-ARC.COM utility. To decompress files with a DCM extension, you need DISKCOM3.UTL. Both programs are available from most BBSes, user groups or you can purchase the April/May '91 AIM 8-bit Disk.

Here's a short description of the files on the June '92 8-bit disk:

### SIDE 1

**CTH\_FB.ARC**—CTH Fast Basic will be a welcome addition to the libraries of BASIC programmers using SpartaDOS 3.2d. It's an extremely fast interpreter for XL/XE users. Fast Basic provides 28,119 bytes of free memory for your BASIC programs. Features include a screen accelerator and a customized, fast floating point package (based on code by Charles Marslett). Docs included. Written by Tom Hunt.

**DEMO2.ARC**—An excellent demo from overseas. Press RESET to move from one stage of the demo to the next.

**FILEDEMO.ARC**—Demo of the File Information Manager, a disk library database manager. Each file entry can include a 128-character detailed file description. Features include interactive search, two description fields, and ability to read disk directory into memory. Written by Larry Richardson (ACCD).

**HVYMETAL.ARC**—An excellent game from the UK and Page 6 magazine. Wander through the mazes and find the lost jems. To move from maze to maze, press the fire button while on the "pads." Joystick required.

**MCALC800.ARC**—MagiCalc 800 is a new version of MagiCalc XL. It is identical to the XL version, except it is written for machines that use Axlon memory bank switching instead of XL/XE bank switching. Includes documentation and a BASIC program to modify MagiCalc 800 to load itself into the extended memory bank of your choice.

### SIDE 2

**BGAMES.DCM**—Three games—Catch 88, Knight Moves and Othello—written by Simon Trew of the LACE club in London, England. This discomm file includes drivers for joystick, mouse, touch tablet and trackball. Use Discomm to decompress to a blank SD disk, then reboot. Once at the DOS menu, load the appropriate driver, then run the games. NOTE: Plug your input device into Port 2!

**LITTLE.ARC**—This demo may be little, but it still is impressive. From the High Tech Team. START and OPTION keys move you from one stage to another.

**VTEX11.ARC**—VTEX is a utility that allows you to view any file on the screen. It's much easier to use than TYPE or COPY to E:. VTEX can page through a file, both forward or backward. Features include pseudo-word wrap, deletion of leading spaces from left margin, string search capability, ASCII CR/LF handling and built-in help. Written by Larry Richardson (ACCD).



**RIO**  
COMPUTERS

**800-782-9110**

8AM - 6PM MON - SAT PACIFIC TIME

ORDERS  
ONLY

CUST. SERVICE/TECH SUPPORT/FAX  
ON VOICE/FAX SWITCH  
**702-454-7700**  
TUE - SAT 1PM - 5PM

**NEW**

# 32 MB TT FAST RAM

The Perfect Add On For DTP, Graphics, Animation Or CAD

Only  
**\$499.95**

Call for SIMM prices

Expand the memory of your TT to an amazing 32 MB!

Uses easy to install SIMMs - 1megX8, 1megX9, 4megX8, or 4megX9

Expand in increments of 4meg, 8meg, 16meg, 20 meg, 32meg

## reSOLUTION SUPER VGA

ADJUSTABLE RESOLUTIONS  
320 X 200 TO 1600 X 1200

256 On Screen Colors Out of 256K With  
Custom COLOR VDI Driver  
(16 colors w/o driver)

Tseng chipset With 1MB VRAM  
Works With All VGA Monitors  
Simple Plug-in Installation

Only **\$499.95** For MEGA2 or MEGA4  
Versions for 520/1040 and STE available soon

COLOR VDI Driver - Only **\$59.95**

256 on screen colors plus super fast screen redraw - and more

## RIO VIDEO

### GENLOCKS

Combine Computer Graphics With Video

- ~Output to any VCR or Camcorder
- ~Simple installation - just plug in and run!
- ~Operates on luminance keying principal

### NEW! - ST GOLD PRO

- ~All the features you could want in a professional genlock
- ~Use Y-C or composite in/out signals
- ~Call for details

### MODEL I GENLOCK

- ~Perfect for systems requiring only composite video
- ~Only \$399.95

### NTSC ENCODER

Convert Atari RGB to Y-C and Composite Video  
CP-10 PROFESSIONAL - Only \$249.95

- ~Standard SCART connector input with free cable to connect to ATARI 13 pin DIN monitor port
- ~Separate output for Luminance (L), Chrominance (C), Composite Video and Audio on standard RCA jacks

### VIDEOTEXT

Professional Video Titling Software - Only \$89.95

## AutoSwitch OVERSCAN

Get More Pixels On ANY Monitor

Works In All Graphic Modes On All Monitors Automatic Switching Between Resolutions

Atari: SM124 - up to 704 X 480    Multisync: Mono - up to 768 X 480  
SC1224 - up to 752 X 240        Color - up to 816 X 240

Only **\$99.95** (2 X 2 in. board requires soldering - installation available at extra charge)

## SUPERCHARGER

THE ULTIMATE MS-DOS EMULATOR

Full MS-DOS Compatibility Plus **Expandability**  
True Multitasking - Run DOS and TOS Simultaneously  
DOS 4.01 included - no extra cost - Only \$450.00

## ULTRASYNC

THE ULTIMATE MULTISYNC MONITOR

ST LOW, MEDIUM OR HIGH

TT LOW OR MEDIUM

SUPER VGA 1024 X 768 NON-INTERLACED

H-Sync 15-48 KHz ~ V-Sync 47-100 Hz  
Video Bandwidth = 65 MHz ~ 14 in. Screen ~ .28mm  
Both 9 pin and HD 15 pin inputs ~ Analog and TTL  
Unlimited colors plus Green or Amber text mode

Only **\$499.95** (includes ULTRASWITCH free for a limited time)

## ULTRASWITCH - Only \$49.95

Connects your ST to any multisync monitor

## DAATASCAN SCANNER

Sale Priced at only - \$249.95

## LCD COLOR VIDEO MONITOR

2.9 in. diag. screen - \$229.95    Separate TV Tuner - \$74.95

## LCD COLOR TV/MONITOR

2.9 in. diag. screen - \$269.95    2.2 in. diag. screen - \$169.95

## PHASE-4 SALE

ROSETTA- \$49.95    PAINT-\$39.95    RENDER-\$49.95

**RIO COMPUTERS**  
3310 BERWYCK STREET  
LAS VEGAS, NV 89121

\*Add \$6.00 shipping/handling in the continental U.S.: \$8.00 - PR, AK, HI, FPO, APO: \$11.00-Canada:  
Other foreign orders call or write for shipping charges: C.O.D. orders add \$5.00 to above charges:  
SPECIFY COMPUTER MODEL WITH ORDER: VISA/MC/Checks/Money Orders/C.O.D. Accepted: Please  
call for return authorization number or your package will be refused - returns may be subject to a 20%  
restocking fee after 15 days: Prices subject to change without notice.

**800-782-9110**  
**702-454-7700**  
IN NEVADA



## Alabama

### BACE

5822 5th Terrace S.  
Birmingham, AL 35212  
Alan Brewster (205) 591-9906  
Meet: Vestavia Hills Public Library  
Day: 2nd Mon. Time: 7PM  
Dues: \$15/Regular, \$25/Advanced  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Matrix Co. #7 (205) 323-2016, Matrix (205) 251-2344  
Misc: Advanced includes AIM 8bit or ST monthly disk

## Arizona

### PHAST

PO Box 56413  
Phoenix, AZ 85079  
Mike Aubrey (602) 870-8360  
Meet: Room #101, Devry College, 2149 W. Dunlap Ave., Phoenix, AZ  
Day: 2nd Sat. Time: 10-12PM  
CPU: ST/Mega/TT  
BBS: ST Base (602) 285-9246, RDS (602) 841-7196, Wild Thing (602) 277-8225

### SEVAC

PO Box 662  
Chandler, AZ 85224  
Marc Dyer (602) 897-0314  
Meet: Dobson Ranch Branch of Mesa Public Libraries  
Day: 3rd Sat. Time: Usually 10AM  
Dues: \$12  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: (602) 833-9216  
Misc: Reduces ST/8-bit library prices, club BBS access.

## California

### ACCESS

PO Box 1354  
Sacramento, CA 95812  
Bob Drews (916) 423-1573  
Meet: SMUD Training Building, Classroom B 1708 59th St., between Folsom Blvd. & R St., off Hwy 50.  
Day: 1st Wed. Time: 7:30PM  
CPU: Atari 8-bit  
BBS: ACCESS (916) 428-8662

### AFED

PO Box 5367  
Vandenberg AFB, CA 93437  
Phil Rominger (805) 736-7147  
Meet: Vandenberg Federal Credit Union, Vandenberg Village branch, Lompoc, CA 93436.  
Day: 1st Mon. Time: 7PM  
Dues: \$10/single, \$15/family  
CPU: Atari 8-bit and ST/Mega/TT

### AUGIE

3905 N. Lugo Ave.  
San Bernardino, CA 92404  
Don Lucia (714) 883-3547  
Meet: East Baseline County Branch Library, 27167 E. Baseline Rd., Highland, CA  
Day: 2nd & 4th Sat. Time: 2-4PM  
Dues: \$25/yr.  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: StarLink (9600) (714) 688-3204

### BAAUG

3691 Eastwood Circle  
Santa Clara, CA 95054  
Joe Fischer (408) 988-3065  
Meet: Agnew Development Center Auditorium, Lafayette & Montague Exp. Santa Clara, CA.  
Day: 1st Mon.  
Dues: \$20  
CPU: Atari 8-bit, ST/Mega/TT and Portfolio  
BBS: (408) 986-0215

### BACE

PO Box 40203  
Bakersfield, CA 93384  
Tim Hobbs (805) 837-2726  
Meet: Pizza Hut, 3017 Wilson Rd., Vons Shopping Center  
Day: 3rd Tue.  
Dues: \$18/yr Full, \$12/yr Regular, \$6/yr BBS  
CPU: Supports Atari 8-bit, ST/Mega/TT, Mac, IBM and Portfolio  
BBS: (805) 831-5350

### DACE

c/o J. Dickerson, PO Box 673  
Diablo, CA 94528  
Dan Howlett (510) 827-3805  
Meet: Contra Costa County Water District Bldg, 1331 Concord Ave, Concord, CA.  
Day: 1st Thu. Time: 7PM  
Dues: \$20/yr  
CPU: Atari 8-bit and ST/Mega/TT

### FRACUS

2167 Richart Ave.  
Clovis, CA 93712  
Tom Hancock (209) 885-2817  
Meet: Four Seasons Mobile Home Park Recreation Room, Fresno, CA.  
Day: Last Sat. Time: 6PM  
Dues: \$20/yr or \$10/semi-annually  
CPU: Atari 8-bit  
BBS: (209) 251-5338  
Misc: Membership includes club disk of the month/newsletter and AtariUser

### MITARI MIDI

1848 N. Gramercy #302  
Los Angeles, CA 90028  
Brian Valentine (213) 461-5407  
Meet: Meets at club address, a MIDI sound studio run by Brian Valentine.  
Day: Last Sun. Time: 2PM  
Dues: \$15/yr  
CPU: Atari ST/Mega/TT  
Misc: MITARI supports audio creativity on the ST/STE. All current members are engineers or producers.

### RAM

PO Box 112  
Camarillo, CA 93011  
Timothy McCoy (805) 482-4788  
Day: 3rd Wed. Time: 7:30PM  
Dues: \$25  
CPU: ST/Mega/TT  
BBS: (805) 987-6985  
Misc: Member of ACENET consortium, active at the Glendale show.

### SBACE

4802 Avenue B  
Torrance, CA 90505  
Robert Smith (310) 518-1845  
Meet: VFW Hall, 1865 Lomita Blvd., Lomita, CA (near Long Beach)  
Day: 2nd Tue. Time: 7:30PM  
Dues: \$20/yr  
CPU: Atari 8-bit, ST/Mega/TT and Portfolio  
Misc: SBACE Gazette newsletter.

### SCCAUG

5222 Carryback Ave.  
San Jose, CA 95111-2801  
Ron Reade (408) 225-7162  
Meet: San Jose Computer Showroom, Alma Court  
Day: 2nd Wed. Time: 7PM  
Dues: \$15/yr  
CPU: Atari 8-bit, ST/Mega/TT and Portfolio  
BBS: SCCAUG (408) 971-9212  
Misc: MIDI demos are held twice yearly.

### SDACE

PO Box 900076  
San Diego, CA 92190  
Dan Phillips (619) 462-1289  
Meet: General: North Park Recreation Center Social Room, 4044 Idaho St. ST/8-bit Workshops: North Park Adult Center, 2719 Howard St.  
Day: Gen.: 3rd Mon., Workshops: 1st Thu. Time: 7PM  
Dues: \$18/yr  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: (619) 689-8157  
Misc: SDACE newsletter, increased BBS access

### SLCC

PO Box 1506  
San Leandro, CA 94577-0374  
Bob Woolley (415) 865-1672  
Meet: San Leandro Community Library, 300 Estudillo Ave.  
Day: Main: 1st Tue., ST: 2nd Mon. Time: 8PM  
Dues: \$20/yr  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Key System (415) 352-5528  
Misc: SLCC Journal, access to print and PD/Shareware disk libraries.

### SST

PO Box 214892  
Sacramento, CA 95821  
Mark Warner (916) 344-8320  
Meet: Pac Bell Auditorium, 2700 Watt Ave.  
Day: 2nd Wed. Time: 7PM  
Dues: \$24/yr  
CPU: ST/Mega/TT  
BBS: ST-Keep (916) 331-6153, (916) 729-2968  
Misc: Club newsletter, free raffle ticket at each general meeting, membership disk

### ST ACE Sonoma

PO Box 4916  
Santa Rosa, CA 95402  
John Orcutt (707) 526-2544  
Meet: Santa Rosa Baptist Church, 3884 Sebastopol Rd.  
Day: 3rd Thur. Time: 7:30PM  
Dues: \$20/yr  
CPU: Atari ST/Mega/TT

### SVACE

672 E. Romie Lane  
Salinas, CA 93901  
Gary Klugman (408) 758-4894  
Meet: Salinas Community Center  
Day: 1st Tue. Time: 7:30PM  
Dues: \$12/yr  
CPU: ST/Mega/TT  
BBS: BitStream (408) 449-2150  
Misc: Raffles, free disk of the month

### TEAC

PO Box 1024  
Laytonville, CA 95454  
Pete Loeser (707) 984-8048  
Meet: Operates by mail, members are spread all over the world.  
Day: US: \$25/yr, Foreign: Inquire  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: TEAC newsletter. 8-bit and ST educational disk library.

### YAC

1129 Fordham Dr.  
Davis, CA 95616-0926  
Eric Hays (916) 756-5486  
Meet: Call or write for meeting time/place  
Dues: \$8/yr  
BBS: STEve's (916) 661-1538  
Misc: PD library access, Yackity-YAC newsletter.

## Colorado

### ACCD

5407 W. 4th Ave.  
Lakewood, CO 80226  
Guy McDaniels (303) 238-2366  
Meet: ACD/STIG: Aurora Public Library, 14949 E. Alameda Ave. STarfleet: Pamona HS, 8101 W. Pamona Dr.  
Day: ACD: 1st Tue.; STarfleet: 2nd Fri.; STIG: 3rd Tue. Time: 7:00 PM  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: (303) 343-2956  
Misc: ACCD is an umbrella group for ACD, Starfleet and STIG.

### P3ACE

PO Box 17779  
Colorado Springs, CO 80935-7779  
Steve Leser (719) 576-3357  
Meet: T.J. Maxx Center at Rustic Hills  
Day: 8-bit: 1st Tue., ST: 4th Thu. Time: 7-9PM  
Dues: \$20/yr family  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Laser (719) 527-1374  
Misc: Club has a Hayes 300 baud and Atari SX-212 1200 baud modem for loan to members. AtariUser and AIM ST and 8-bit Disks available at each meeting.

## Connecticut

### CCCC

127 Pinnacle Rd.  
Bristol, CT 06010  
Rich Scheidel (203) 589-3738  
Meet: 127 Pinnacle Rd., Bristol, CT.  
Day: 3rd Wed. Time: 7:30PM  
Dues: \$25/yr normal, \$30/yr family  
CPU: Atari 8-bit, ST/Mega/TT and Portfolio

### STARR

15 John St.



Ansonia, CT 06401  
 Madelon Wilson (203) 735-6711  
 Meet: Greater New Haven State Tech. College,  
 88 Bassett Rd., North Haven, CT.  
 Day: 3rd Thu. (exc. Aug.)  
 Dues: \$20/yr  
 CPU: ST/Mega/TT  
 BBS: (203) 421-4861

### Delaware

CDACC  
 3117 Walnut St.  
 Dover, DE 19901  
 CPU: Atari 8-bit and ST/Mega/TT

### Florida

ABLE  
 PO Box 1172  
 Winter Park, FL 32790  
 Hadley Nelson (407) 671-0317  
 Meet: Orlando Public Library, Palm Magnolio  
 Room 101 E. Central Blvd., Orlando FL  
 Last Sun. Time: 1:30-4:30PM  
 Day: \$12  
 Dues: \$12  
 CPU: Atari 8-bit and ST/Mega/TT  
 Misc: Access to the ABLE Program Library of  
 User Software (ABLE PLUS) and ABLE  
 AID newsletter.

PACE  
 2439 Moorehaven Drive East  
 Clearwater, FL 34623-1615  
 Alan Frazer (813) 791-0912  
 CPU: Atari 8-bit  
 BBS: Tut's (813) 797-8449

STARgroup  
 2312 Ironstone Dr. E.  
 Jacksonville, FL 32216  
 S. Michael Hallack (904) 646-0567  
 Meet: La Miranda Apartments off Powers Ave.,  
 Jacksonville, FL.  
 Day: 1st & 3rd Tue.  
 Dues: \$15/yr  
 CPU: ST/Mega/TT, Macintosh and Portfolio  
 BBS: Lief's World (904) 573-0734  
 Misc: Free PD/Shareware disk library access,  
 quarterly newsletter.

TBA  
 5918 Otis Ave.  
 Tampa, FL 33604  
 Butch James (813) 237-4306  
 Meet: East Bay Library, East Lake Square Mall  
 Day: 2nd Wed. Time: 7PM  
 Dues: \$10/yr  
 CPU: Atari 8-bit and ST/Mega/TT  
 Misc: Monthly classes in software and  
 peripherals

### Georgia

MGAUG  
 Rt. 1 Box 362M4 Carl Sutton Rd  
 Lizella, GA 31052  
 Jeff Vincent (912) 836-3852  
 Meet: Tattnell Square Academy, Macon, GA.  
 Day: 2nd Sun. Time: 2PM  
 Dues: \$30/yr and \$4/year optional newsletter  
 CPU: ST/Mega/TT  
 Misc: Club library use is free to all paid  
 members. AtariUser. Participates in  
 annual show at local mall.

STAR  
 3069 N. Brook Rd.  
 Chamblee, GA 30341  
 Rick Ostapower (404) 487-4845  
 Day: 3rd Mon.  
 Dues: \$30/yr  
 CPU: ST/Mega/TT

### Illinois

CUSTUG  
 PO Box 3442  
 Champaign, IL 61826-3442  
 Lee Johnson (217) 356-7916  
 Meet: Urbana Free Library Auditorium, corner of  
 Elm and Race, Urbana, IL.  
 Day: 2nd Wed. Time: 7PM  
 Dues: \$16/yr  
 CPU: ST/Mega/TT  
 Misc: AtariUser magazine, PD library access,  
 December MIDI concert/demo.

EAUG  
 2425 Crislisa Dr.

Alton, IL 62002  
 Hank Vize (618) 465-0342  
 Meet: Alton Square Mall Community Room,  
 Alton, IL.  
 Day: 1st Mon. Time: 7PM  
 Dues: \$18/yr newsletter membership  
 CPU: Atari 8-bit and ST/Mega/TT  
 BBS: Eastside (618) 254-6077, Garage (618)  
 344-8466  
 Misc: EAUG-Log club newsletter Member of  
 Midwest Atari Regional Council consortium

GAUG  
 55 Herring St.  
 Galesburg, IL 61401  
 Russ Watson (309) 343-6609  
 Meet: Community Center on Simmons St. in  
 Galesburg, one block south of downtown.  
 Day: 2nd Mon. Time: 7PM  
 Dues: \$10/yr family, \$5/yr student  
 CPU: Atari 8-bit and ST

LCACE  
 PO Box 8788  
 Waukegan, IL 60079-8788  
 Mike Brown (708) 336-1128  
 Meet: Warren-Newport Public Library, 244  
 O'Plain Rd., Gurnee, IL.  
 Day: 2nd Sat. Time: 11AM-3PM  
 Dues: \$20/yr  
 CPU: Atari 8-bit and ST/Mega/TT  
 BBS: Python (9600) (708) 680-5105, Pegasus  
 (708) 623-9570  
 Misc: Sponsored Midwest AtariFest (Apr. '90),  
 ChicagoFest (Nov. '90) and the recent  
 ChicagoFest by Atari (Nov. '91).

RACC  
 5430 N. 2nd St.  
 Loves Park, IL 61111  
 Cal Schafer (815) 633-1259  
 Meet: Springbrook Congregational Church, off  
 Alpine just as you make the turn onto  
 Springbrook Rd. from Spring Creek Rd.,  
 Rockford, IL.  
 Day: 3rd Sat. Time: 9AM-Noon  
 CPU: Atari 8-bit and ST/Mega/TT  
 BBS: (815) 226-2388

SCAT  
 PO Box 72266  
 Roselle, IL 60172  
 Meet: College of Dupage, Student Resource  
 Center on Lambert Rd. between  
 Roosevelt and Butterfield, Glen Ellyn, IL.  
 Day: 1st Sat. (check BBS) Time: 10AM  
 Dues: \$20/yr family  
 CPU: Atari 8-bit and ST/Mega/TT  
 BBS: SCAT (708) 231-7227

STAR  
 337 N. 43rd St.  
 Belleville, IL 62223  
 Craig Carter (618) 233-6675  
 Meet: Illinois Power Bldg., 1050 West Blvd.,  
 Belleville, IL.  
 Day: Last Mon. (exc. December) Time: 7PM  
 Dues: \$15/yr  
 CPU: ST/Mega/TT

### Indiana

ACORN  
 3627 Iowa Court  
 Fort Wayne, IN 46815  
 Bob Kelley  
 Meet: Shawnee Branch of the Allen County  
 Public Library  
 Day: 1st Sat. Time: 10AM-1PM  
 Dues: \$18  
 CPU: Atari 8-bit and ST/Mega/TT  
 BBS: (219) 744-1396  
 Misc: Three Rivers Festival, PentaCon, ICE  
 Kid's Conference Participant.

CRAG  
 PO Box 10995  
 Merrillville, IN 46411  
 Randy Noak (219) 663-6912  
 Meet: Broadway Music, Greentree Plaza, 1509  
 W. 81st (US-30), Merrillville, IN.  
 Day: 2nd Wed. Time: 7PM  
 Dues: \$15/yr  
 CPU: ST/Mega/TT  
 Misc: ST disks \$2.50 each for members, \$4  
 non-members

### Kansas

FLAG  
 PO Box 3233  
 Fort Leavenworth, KS 66021  
 Jeff Yoe (913) 682-2883  
 CPU: Atari 8-bit and ST/Mega/TT

### Kentucky

AEL  
 PO Box 34183  
 Louisville, KY 40232  
 Lawrence Estep (812) 944-8997  
 Meet: Central Jefferson County Government  
 Center, 7201 Outer Loop  
 Day: 2nd Sat., 8bit SIG: 1st Wed., ST SIG: 4th  
 Wed. Time: 11:30AM/SIGS: 7:30PM  
 Dues: \$20/yr per family  
 CPU: Atari 8-bit and ST/Mega/TT  
 BBS: Atari Scene! (502) 456-4292  
 Misc: Members subscribe to AELien  
 Transmissions newsletter (6 issues) for  
 \$1.74/yr.

BRACE  
 3209-B Baird Ct.  
 Lexington, KY 40515  
 Hal Nason (606) 269-8989  
 Meet: Lexington Free Public Library, Downtown  
 Branch  
 Day: 3rd Tue. Time: 7-9PM  
 Dues: \$15/indiv., \$20/family, \$10/assoc.  
 CPU: Atari 8-bit and ST/Mega/TT  
 Misc: Associate membership includes AIM but  
 not library access.

### Louisiana

CASTE  
 314 W. Claude St.  
 Lake Charles, LA 70605  
 Tim Bowles (318) 477-3243  
 Meet: College Park Nazarene Church, 340 E.  
 Prien Lake Rd., Lake Charles, LA  
 Day: Last Sat. Time: 1PM  
 Dues: \$15/yr  
 CPU: ST/Mega/TT  
 BBS: General Store (14.4K)(318) 855-6939

### Massachusetts

WMAUG  
 285 Gates St.  
 Palmer, MA 01069  
 David Scarpa (413) 283-4171  
 Meet: Chicopee Public Library Main Branch,  
 Front St., Chicopee, MA  
 Day: 1st Wed. Time: 7PM  
 Dues: \$20/yr  
 CPU: Atari 8-bit, ST/Mega/TT and Portfolio  
 BBS: WMAUG Junction (413) 283-4967

### Michigan

CACE  
 PO Box 6161  
 Jackson, MI 49204  
 CPU: Atari 8-bit, ST/Mega/TT and IBM

GAG  
 PO Box E  
 Flint, MI 48507  
 Jerry Cross (313) 736-4544  
 Meet: GMI Institute Rm 817A, corner of  
 Chevrolet and 3rd Ave, Flint, MI  
 Day: 2nd Wed. Time: 6:30PM  
 Dues: \$15/yr  
 CPU: Atari 8-bit and ST/Mega/TT  
 BBS: FACTS (9600) (313) 736-3920, Carnival  
 (313) 235-0158, Nine Planes (313) 233-  
 6095  
 Misc: Helped sponsor 1987 MAGIC show and  
 1989 WOA Detroit show

GLASS  
 PO Box 99737  
 Troy, MI 48099  
 Byron Johnson (313) 758-2741  
 Meet: Troy-Athens High School, 2 blocks north  
 of Wattles on John R Rd.  
 Day: 1st Thur. Time: 7PM  
 Dues: \$20/yr  
 CPU: Atari ST/Mega/TT

GRASS  
 624 Dickinson SE  
 Grand Rapids, MI 49507  
 Meet: Wyoming Public Library, 3350 Michael  
 S.W., Grand Rapids, MI.



Day: 1st Wed. Time: 7PM  
Dues: \$22/yr  
CPU: Atari 8-bit

#### MACE

PO Box 2785  
Southfield, MI 48037  
Meet: Southfield Civic Center, Room 115, at 1-1/2 Mile and Evergreen, 1/2 mile south of the Evergreen exit on I-696.  
Day: 3rd Tue. Time: 7:30PM  
Dues: \$20/yr  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: Send \$2 for current ST or 8-bit disk catalog.

#### SALSA

PO Box 1342  
Sault Ste. Marie, MI 49783  
Roger Aube (705) 759-3922

#### STAG

4765 N. Eastman Rd.  
Midland, MI 48640  
Bryant LaFreniere (517) 835-2234  
Meet: Rudy Zauel Memorial Library, corner of Center and Shattuck in Saginaw Township.  
Day: 2nd Sat. Time: 9AM  
Dues: \$20/yr  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: Free PD disk with membership/renewal, PD disks are \$3 or 2 for \$5. Participates in Community Fair at Fashion Square Mall each January

#### STING

PO Box 321  
Mame, MI 49435-0321  
Donna Meyer (616) 942-5167  
Meet: Plainfield Township Library, 2650 5 Mile Rd NE, 1/2 mile east of N. Kent Mall.  
Day: 2nd Wed. Time: 6:30-9PM  
Dues: \$15/yr  
CPU: Atari ST/Mega/TT  
BBS: STING (616) 532-5736

#### WAUG

14 Payeur  
Ann Arbor, MI 48108  
Dave Brzezinski (313) 971-3927  
Meet: Michigan Student Union on State St. at the corner of S. University in Ann Arbor.  
Day: 2nd Tue. Time: 7:30PM  
Dues: \$15/yr  
CPU: Atari 8-bit, ST/Mega/TT, Macintosh and Portfolio  
BBS: MOlin's Den (313) 451-0524  
Misc: Monthly 8-bit and ST raffle, free ticket for members, SX212 modem available for loan.

#### PACE

4835 Crosley Ave.  
Duluth, MN 55804-1219  
Tracy Hendershot (218) 525-1058  
Meet: Duluth Radisson Hotel, check local BBSes for exact location. Meetings are bi-monthly (Jan, Mar, May, Jul, Sept. and Nov.).  
Day: 3rd Sun. Time: 1:30PM  
Dues: \$30/yr.  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: Newsletter, free ST/8-bit disk, free printer ribbon reinking, free copying of ST/8-bit PD libraries.

### Minnesota

#### ACE of SL

PO Box 3508  
St. Louis, MO 63143  
Nick Barr (314) 741-1505  
Meet: Thornhill Branch of St. Louis County Library, Fee Fee and Willowick, Maryland Heights, MO.  
Day: Date and time varies  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: Club newsletter. Member of MARC.

#### KCAC

1107 W. 88th St.  
Kansas City, MO 64114  
Gary Leach (913) 236-9643  
CPU: ST/Mega/TT

### Missouri

#### RACE

Box 364  
Frenchtown, MT 59834  
Tom Tucker (406) 626-4410  
Meet: National Guard Armory, 2501 Reserve St., Missoula, MT.  
Day: 3rd Sun. Time: 7PM  
Dues: \$16/year  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: Membership includes free PD disk

### North Carolina

#### RACE

4360 Hunters Club Dr.  
Raleigh, NC 27606  
Lewis Midyette (919) 828-4319  
Meet: Announced on Galaxy BBS, look under Bulletins for "A word from the president of RACE"  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Galaxy (919) 552-0974

#### North Dakota

##### MACUG

129-2 Sirocco Dr.  
Minot AFB, ND 58704

### Nebraska

#### O-ACES

PO Box 723  
Papillion, NE 68046  
Pete Killian (402) 592-5427  
Meet: La Vista Recreation Center, 8116 Parkview Blvd. (just off 84th St., south of Food-4-Less and east of 84th at the light.)  
Day: 2nd and Last Wed. (exc. Nov. & Dec.)  
Time: 7:30PM  
CPU: Atari 8-bit and ST/Mega/TT

### New Jersey

#### JACS

PO Box 710  
Clementon, NJ 08021  
Mike Hopkins (609) 783-1423  
Meet: Camden County Library  
Day: 3rd Tue. Time: 7-9PM  
Dues: \$24/yr (August renewal)  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: (609) 346-1224  
Misc: Between Bytes newsletter, AtariUser available at meetings Send SASE (business size) for copy of current ST or 8-bit disk catalog.

### New Mexico

#### AACE

1021 Sagebrush Trail SE  
Albuquerque, NM 87123  
Richard Houser (505) 299-3977  
Meet: Gas Company of New Mexico. 4625 Edith Blvd, Albuquerque.  
Day: Gen: 1st Sat and 3rd Tue., 8bit: 2nd Tue.  
Dues: \$20/yr payable in January  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Astro (505) 260-0448  
Misc: PD library access, BBS membership. Swap meet on 1st Sat. of June and December.

### Nevada

#### HISUG

PO Box 2152  
Sparks, NV 89432  
Gary Marston (702) 885-2081  
Meet: Round Table Pizza, Baring Village, 1201 Baring Blvd., Sparks, NV.  
Day: 3rd Thur. Time: 7PM  
Dues: \$20/yr  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: UNreliable (702) 358-6307

#### SNACC

48 Lafayette St.  
Las Vegas, NV 89110  
Harvey Cannon (702) 459-4089  
Meet: Winchester Center, 3130 Mcleod  
Day: 1st Thur. Time: 7-9PM  
CPU: Atari 8-bit, ST/Mega/TT and Portfolio  
BBS: SNACC (702) 438-2208

### New York

#### ACORN

PO Box 24920  
Rochester, NY 14624

Don Allis (716) 293-3415  
Meet: Brighton HS, 1150 Winton Rd. South, Room 262S.

Day: 2nd Wed. Time: 7PM  
Dues: \$20/yr (add \$6 for AIM)  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Dimension's End (716) 436-3078  
Misc: ACORN Kernel newsletter, AtariUser, extra BBS access. ST Beginners and 8-bit Basically Speaking classes held before general meeting.

#### BRAG\*ST

PO Box 1035  
Buffalo, NY 14225  
Mark Pierre (716) 691-7844  
Meet: Erie Community College, North Campus, Room S-105 in the Student Center.  
Day: 3rd Thu. Time: 7:30PM  
CPU: ST/Mega/TT  
Misc: Monthly raffle. Board of Directors, 1st Thurs. at Your Host Restaurant, Harlem at Sheridan, 7PM.

#### CDACE

PO Box 1910  
Schenectady, NY 12301  
Bob Thompson (518) 439-5356  
Meet: Computer Cellar in the Westgate Plaza, Albany, NY.  
Day: ST: Last Wed., XL/XE: Qtrly. Time: 6:30PM  
Dues: \$20/year  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: ST disks \$2, free XL/XE library access.

#### LIAUG

PO Box 92  
Islip, NY 11751  
John Aalto (516) 589-6754  
Meet: Nesconset branch of the Smithtown Library, Nesconset, NY.  
Day: 1st Sat.  
Dues: \$20/yr  
CPU: Atari 8-bit, ST/Mega/TT, Portfolio and Lynx  
BBS: New Nest (516) 234-4943, Star Scan (516) 399-4252

#### OHAUG

3376 Ocean Harbor Dr.  
Oceanside, NY 11572  
Alex Pignato (516) 678-6081  
Meet: Plainview-Old Bethpage Library, 999 Old Country Rd. in Plainview  
Day: Usually 2nd Sat.  
Dues: \$24/yr  
CPU: Atari 8-bit ONLY!  
Misc: Charter member of NEAR\*US user group consortium.

#### WNYAUG

PO Box 59  
Buffalo, NY 14216  
Mike Husband (716) 825-8486  
Meet: Room 116E, Bacon Hall, State University College of Buffalo, 1300 Elmwood Ave.  
Day: 1st Thu. Time: 7:30PM  
Dues: \$15/yr new, \$12/yr renewal  
CPU: Atari 8-bit  
BBS: Wizard's Attic (716) 681-1654  
Misc: POKEY newsletter disk

### Ohio

#### ACCT

4487 289th  
Toledo, OH 42611  
Dave & Brenda Micka (419) 729-1891  
Meet: Dave & Brenda Micka's home.  
Day: 1st Wed. Time: 7-9PM  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Disk Drive-Thru (419) 885-3441  
Misc: Disks \$2 8-bit, \$4 ST

#### ACEC

1287 Dennison Ave.  
Columbus, OH 43201

#### CVACC

PO Box 9173  
Akron, OH 44305  
Don Crano (216) 376-7618  
Meet: First National Bank, Mogadore, OH.  
Day: 2nd & 4th Tue. Time: 7:30PM  
Dues: \$20 family  
CPU: Atari 8-bit and Mega/ST/TT  
Misc: Discounts at local computer stores, club



**MAUG**

PO Box 134  
Ontario, OH 44862  
Chuck Steinman (419) 529-2478 after 5PM  
Meet: A&B Computers, 1151 Park Ave. W., West Park Shopping Center, Mansfield, OH.  
Day: 3rd Sat. (exc. July) Time: 7-9PM  
Dues: \$12/yr  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: DataQue (419) 529-5197  
Misc: Members can access AIM ST and 8-bit disk files on the BBS. AtariUser available free to members at A&B. Back issues of AtariUser available for \$1 each.

**MVACE**

PO Box 24221  
Huber Heights, OH 45424  
Dan Steffen (513) 832-0749  
Meet: Jaycees Clubhouse  
Day: 2nd & 3rd Sat. Time: 9:30 to Noon  
Dues: \$20/yr, \$12 for students or newsletter only  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: ACE (513) 233-9500

**NASAC**

1810 Cheviot Hill Dr.  
Springfield, OH 45505-3508  
Meet: Vandalia Elementary School, Room #2, 333 Bohanan Dr., Vandalia, OH 45377.  
Day: 2nd Thu. Time: 7:30PM  
Dues: \$12/yr  
CPU: Atari 8-bit, ST/Mega/TT and IBM  
Misc: Monthly newsletter "The NAS-HACKER."

**STANCE**

1174 Larkspur Dr.  
Lyndhurst, OH 44124  
Joseph Adato (216) 449-6881  
Meet: B&G Electronics, 15729 Madison Ave., Lakewood, OH.  
Day: 3rd Mon. Time: 7:15PM  
Dues: \$12/yr with one time sign up fee of \$13  
CPU: ST/Mega/TT

**Oklahoma**

**TACE**

16564 SE 18th  
Choctaw, OK 73020  
Ron Hamilton (405) 387-5649  
Meet: Moore Public Library, 225 S. Howard, just off SW 4th and I-35, Moore, OK.  
Day: 1st Sat. Time: 1PM  
Dues: \$15 family, \$7 correspondence (July renewal)  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: TACE (405) 366-1977  
Misc: Will mail copies of AtariUser magazine to individuals for approx. \$1 per issue.

**Oregon**

**ACUNET**

2662 E. Nob Hill Dr. SE  
Salem, OR 97302  
Ron Purdy (503) 588-7509  
Day: 4th Tue. Time: 7PM  
Dues: \$15 with AIM, \$10 without  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Salem Public Lib. (503) 588-6130, Page (503) 363-0171, The Jungle (503) 393-4274.

**COAC**

PO Box 6824  
Bend, OR 97708  
Aaron Leis (503) 388-7516  
Meet: Ann Rita Conference Center (in front of the St. Charles Hospital on Neff Rd.), Bend, OR.  
Day: 1st Sat. Time: 5PM  
Dues: \$20/yr new, \$17/yr renewal, \$1/yr for each additional family member.  
CPU: Atari 8-bit and ST/Mega/TT

**DCASTE**

1033 Barager  
Roseburg, OR 97470  
Jim Steingrobe (503) 673-1687

**PAC**

PO Box 1692  
Beaverton, OR 97005

David Hunt (503) 286-6276  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: ACE of America (503) 285-4417

**Pennsylvania**

**NAPCO**

642 E. Waring Ave.  
State College, PA 16801  
Greg Brown (814) 238-4255  
CPU: Atari 8-bit and ST/Mega/TT

**PACS**

Atari 8bit  
Box 312, LaSalle Univ.  
Philadelphia, PA 19141  
Meet: Drexel University, Room M11B, Matherson Blvd., 32nd and Market St., Phil., PA.  
Day: 3rd Sat.  
Dues: \$25/year with an additional \$2 for new members.  
CPU: Atari 8-bit  
BBS: (215) 942-9600 to 9604 (9603/4 for 300 baud)  
Misc: The DataBus newsletter, AtariUser

**SAGE**

PO Box 10562  
Erie, PA 16514-0562  
Dennis McGuire (814) 833-4724  
Meet: St. John's Lutheran Church, Erie, PA.  
Day: 3rd Sun. Time: 2PM  
CPU: Atari 8-bit and ST/Mega/TT

**SPACE**

PO Box 11446  
Harrisburg, PA 17108  
John Slade (717) 938-3656  
Meet: Camp Hill Mall Community Room  
Day: 3rd Mon. Time: 7:30PM  
Dues: \$15/yr  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: SPACE Probes newsletter

**WACO**

230 Clairmont St.  
North Huntingdon, PA 15642  
Patty Marshall (412) 225-8637  
Meet: North Huntingdon Town House, near Irwin, PA.  
Day: 2nd Tue.  
Dues: \$24 family  
CPU: Atari 8-bit, ST/Mega/TT, Mac, IBM and Portfolio  
Misc: Huge foreign PD libraries. Participates in many Atanifests in the northeast.

**South Dakota**

**RACE**

9512-A Adams  
Ellsworth AFB, SD 57706  
Rick Burton (605) 642-5353  
Meet: Rapid City Public Library  
Day: 4th Sat. Time: 2PM  
Dues: \$12 basic, \$15 newsletter  
CPU: Atari 8-bit and ST/Mega/TT

**Tennessee**

**CACE**

280 Capshaw Drive  
Cookeville, TN 38501  
Dan Hale (615) 526-8002  
Meet: Putnam County Library, Cookeville, TN.  
Day: 1st Sat. Time: 1PM  
Dues: \$10  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Generic BBS (615) 432-5809

**MASH**

3265 Austin Peay Hwy.  
Memphis, TN 38128  
Randy McKinna (901) 388-3384  
Meet: State Technical Institute in the Fulton Auditorium.  
Day: 2nd Mon. Time: 7PM  
Dues: \$24/yr (renewal in July)  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: MASH COM (901) 377-1904

**NAUG**

PO Box 121752  
Nashville, TN 37221  
Walt Sullivan (615) 228-7353  
Meet: Cumberland Museum and Science Center  
Day: 3rd Thu. Time: 7-10PM  
Dues: \$24/yr full; \$12/yr associate  
CPU: Atari 8-bit and ST/Mega/TT

BBS: Nashville Exchange (9600) (615) 383-0727, Troll's Cave (615) 872-0757

**Texas**

**AAAUA**

PO Box 79-1426  
San Antonio, TX 78279  
Al Sherrill (512) 492-6633  
Meet: Balcones Heights Community Center, 107 Glenarm, San Antonio, TX. 107 Glenarm, San Antonio  
Day: 1st Tue. Time: 6:30-9:30PM  
Dues: \$24; Subscribing: US-\$16, CAN/MEX-\$36 (\$14 no AIM), Other-\$54 (\$18 no AIM)  
CPU: Atari 8-bit  
Misc: Library of around 700 disks. (FR)ANTIC monthly newsletter. Swap meet and computer workshop each 3rd meeting.

**AACE**

1601 Larkwood Dr.  
Austin, TX 78723  
Eve Kuniansky (512) 323-2016  
Meet: Library. Pizza buffet 1st Thursday of each month 6:30-8PM.  
Day: 2nd Sat. Time: 2-5PM  
Dues: \$24/yr Jan-Dec  
CPU: Atari 8-bit, ST/Mega/TT, Portfolio and Lynx  
Misc: Newsletter, C classes, library access.

**ACCEPT**

245 Longhorn Court  
El Paso, TX 79907-5215  
Steve Bruck (915) 858-1117  
Dues: \$20  
CPU: Supports Atari 8-bit, ST/Mega/TT, Macintosh and IBM  
BBS: STEP (915) 755-STEP; STE-EP (915) 821-9220  
Misc: Discounts from Jenkins' Computers, special STE-EP access.

**GTAUG**

6621 Capitol St.  
Groves, TX 77619  
Ray St Cyr (409) 727-7215  
Day: Usually 2nd Tue.  
Dues: \$24/yr (Sept. renewal)  
CPU: Atari 8-bit, ST/Mega/TT, Macintosh  
BBS: (409) 722-6526

**HACE**

PO Box 460212  
Houston, TX 77056  
Bill Kithas (713) 855-0815  
Meet: Health Economics Corp., 2400 West Loop S., Houston, TX.  
Day: 4th Wed. Time: 6:45PM  
Dues: \$22/year  
CPU: Atari 8-bit, ST/Mega/TT  
BBS: (713) 458-9923  
Misc: UPDATE ATARI newsletter, store discounts, door prizes, workshops.

**HASTE**

4930 Shadowdale  
Houston, TX 77041  
Phillip Stojankik (713) 896-9131  
Meet: Megabyte Plus, 5181 FM1960W, Houston, TX 77069.  
Day: Last Sat. Time: 10:30AM  
Dues: \$20/yr  
CPU: ST/Mega/TT and Portfolio  
BBS: HASTE (713) 921-0550  
Misc: Hosts the annual Atari Safari show.

**SALSA**

PO Box 18731  
San Antonio, TX 78218-0731  
Tim Hebel (512) 656-5315  
Meet: Balcones Heights Community Center, 710 Glenarm, San Antonio, TX.  
Day: 2nd Tue. Time: 7-10PM  
Dues: \$20 w/AIM, \$15 regular  
CPU: ST/Mega/TT  
Misc: Club newsletter, discounts, Disk of the Month for \$2, New user classes.

**Utah**

**LACE**

3897 S. 2275 W.  
Roy, UT 84067-3515  
Irwin Brooks (801) 731-1516  
Meet: Clearfield Library basement, Roy, UT.  
Day: 2nd Wed. Time: 7PM





Dues: \$20/yr  
CPU: Atari 8-bit and ST/Mega/TT

STUN  
PO Box 27285  
Salt Lake City, UT 84127  
Randy Larsen (801) 967-0209  
Meet: Murry High School  
Day: 3rd Wed. Time: 7PM  
CPU: ST/Mega/TT  
BBS: The Bolt (801) 968-3921

### Washington

CACUG  
Box 767  
Chewelah, WA 99109  
CPU: Atari 8-bit and ST/Mega/TT

FACCS  
PO Box 5121  
Spokane, WA 99205  
Tim Osborne (509) 624-1917  
Meet: Eager Beaver Computers, next to the  
Garland Theatre, Spokane, WA.  
Day: 2nd Thu. Time: 7PM  
Dues: \$15/yr family  
CPU: Atari 8-bit and ST/Mega/TT

Starbase  
8307 27th NW  
Seattle, WA 98117  
Steve Drake (206) 782-3691  
Meet: Mountlake Terrace Library, 23300 58th  
Ave West, Mountlake Terrace, WA.  
Day: 2nd Fri. Time: 6PM  
Dues: \$18/yr  
CPU: Atari 8-bit and ST/Mega/TT

SWAG  
PO Box 1515  
Vancouver, WA 98668  
Gary Lentz (206) 573-8224  
Meet: Clark County Fire District #5, Station 3 on  
213 NE 120th, Vancouver, WA.

Day: Last Sun. (exc. July) Time: 6:30PM  
Dues: \$12/yr  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: Bear Cavern (206) 574-1146

### Wisconsin

MilAtari  
PO Box 14038  
West Allis, WI 53214  
Lee Musial (414) 466-7557  
Meet: Greenfield Park Lutheran Church, 1236 S.  
115th St.  
Day: 3rd Sat. Time: Noon  
Dues: \$22/yr  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: MilAtari hosts the Computer Gaming area  
at GEN-Con each year.

### Canada—Ontario

KAUG  
153 Oxley Dr.  
Chatham, Ontario N7L 4R3 CANADA  
Channel One Computers (519) 351-0760  
Meet: North Maple Village Mall on Highway #40,  
just north of Chatham.  
Day: 4th Tue., Sept-May  
Dues: \$20/yr  
CPU: Atari 8-bit and ST/Mega/TT  
BBS: KAUG BBS (519) 351-3901

NCAUG  
15 Blueridge Court  
Nepean, Ontario K2J 2J3 CANADA  
Hardy Zeltins (613) 825-4196  
CPU: Atari 8-bit, ST/Mega/TT, Macintosh

TASTE  
185 Varsity Row  
Thunder Bay, Ontario P7B 5P2 CANADA  
Dues: \$25/yr Canadian  
CPU: ST/Mega/TT

WAUG  
3199 McKay Ave.

Windsor, Ontario N9E 2R4 CANADA  
Brian Cassidy (519) 966-0305  
Meet: Roseville Gardens Community Centre,  
4200 Roseville Garden Dr., Windsor,  
Ontario, Canada.  
Day: 3rd Thu. Sept-June, exc. Dec. (2nd Thu.)  
Time: 7:30PM  
Dues: \$25 Canadian  
CPU: Atari 8-bit and ST/Mega/TT

### Canada—Quebec

ASTMUM  
PO Box 966, Station B  
Montreal, PQ H3B 3K5 CANADA  
Kest Carter-Morgan (514) 272-6631  
CPU: ST/Mega/TT, MIDI Specialists  
Misc: Emergency repair, laser printing &  
graphics services, discounts on computer  
and MIDI equipment, Audio Recording &  
Music Tech course discounts and MUCH  
MORE!

MACAM  
PO Box 5418  
St. Laurent, PQ H4L 4Z9 CANADA  
Terry Cowen (514) 696-3773  
Meet: Monkland Recreational Centre, 4410 West  
Hill, N.D.G., Montreal, Quebec.  
Day: 8-bit: 1st Thu., ST: 3rd Thu.  
Dues: \$25 8-bit, \$30 ST, \$35 both (Canadian)  
CPU: Atari 8-bit, ST/Mega/TT and Portfolio  
BBS: Enchanted Realm (514) 366-4556  
Misc: Disk-based newsletter, free AIM disk  
access, AtariUser magazine

### England

BaPAUG  
248 Wimborne, Oakdale  
Poole, Dorset BH15 3EF ENGLAND  
Day: 1st Fri. Time: 7:30PM  
CPU: Atari 8-bit and ST/Mega/TT  
Misc: 8:16 Newsletter

## AIM ADVERTISERS

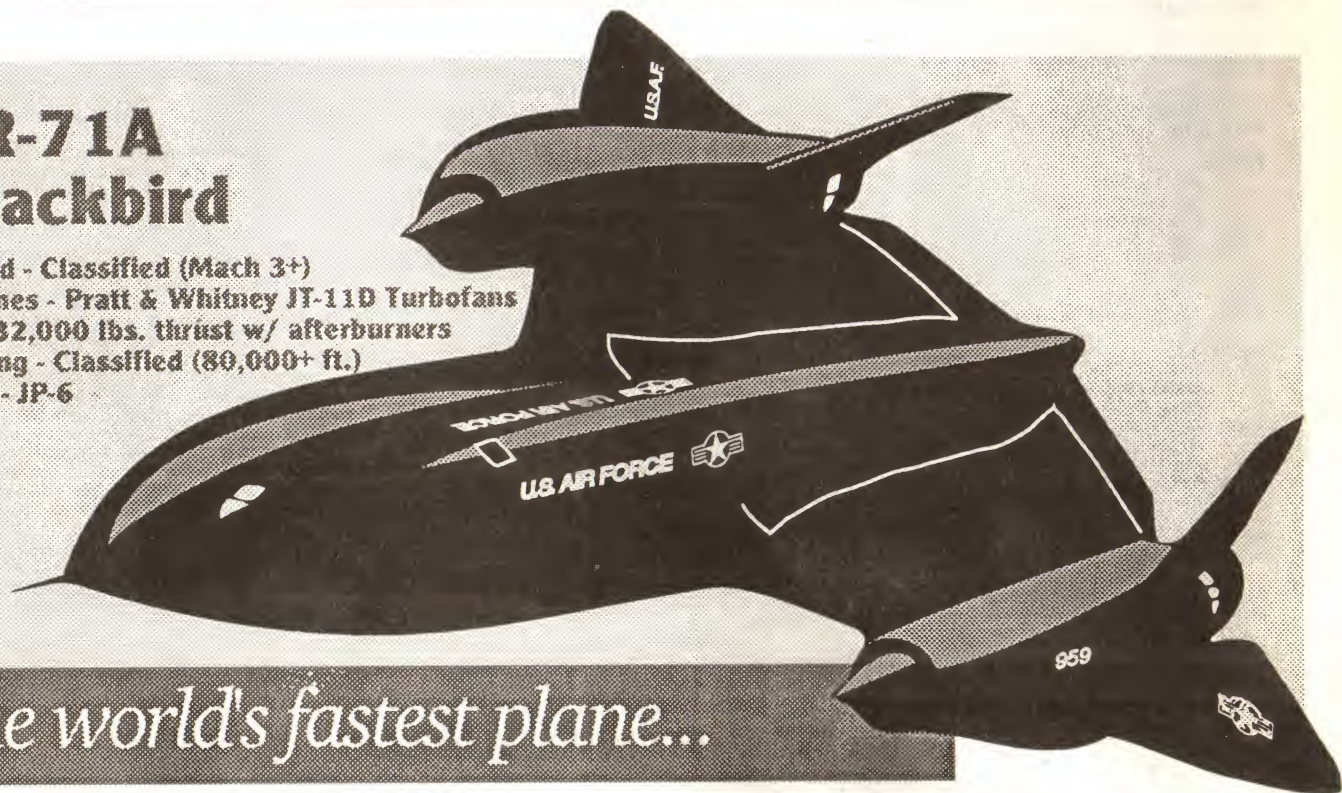
|                            |            |                           |       |
|----------------------------|------------|---------------------------|-------|
| Accusoft•ST                | 15         | MAST Atari Show           | 1     |
| (800) 676-2402             |            | (414) 463-9662            |       |
| American Techna-Vision     | 42         | Machine Specific Software | 31    |
| (800) 551-9995             |            | (408) 370-9039            |       |
| B&C ComputerVisions        | 32         | Maxwell CPU               | 35    |
| (408) 986-9960             |            | (303) 666-7754            |       |
| BellCom                    | 40         | MegaType                  | 52    |
| Clear Thinking             | 13         | (219) 288-7468            |       |
| (313) 971-8671             |            | Micro Creations           | 49    |
| CodeHead Software          | 9,23       | (800) 582-6351            |       |
| (213) 386-5735             |            | MidWestern Diskette       | Back  |
| CompuServe                 | 24         | (800) 221-6332            |       |
| (800) 848-8199             |            | RIO Computers             | 58    |
| Computer Software Services | In. Back   | (800) 782-9110            |       |
| (716) 586-5545             |            | Rising STar Computers     | 18,19 |
| Computer Studio            | 10         | (800) 252-2787            |       |
| (800) 253-0201             |            | Run PC                    | 27    |
| Connecticut AtariFest      | 17         | (800) 326-2344            |       |
| (203) 332-1721             |            | Software Infinity         | 41    |
| D&P Computer Supply        | Ins. Front | (814) 238-7967            |       |
| (800) 535-4290             |            | Software Spectrum         | 43    |
| Double Click Software      | 9          | (908) 561-8777            |       |
| (713) 977-6520             |            | STerling Connection       | 49    |
| Gadgets by Small           | 64         | (800) 624-2355            |       |
| (303) 791-6098             |            | Team Computers            | 14    |
| Grand Mesa Research        | 35         | (313) 445-2983            |       |
| (719) 438-5419             |            | Toad Computers            | 36,37 |
| JMG Software               | 28         | (800) 448-8623            |       |
| (416) 575-3201             |            |                           |       |



feel the need... **THE NEED FOR SPEED**

## SR-71A Blackbird

Speed - Classified (Mach 3+)  
Engines - Pratt & Whitney JT-11D Turbofans  
32,000 lbs. thrust w/ afterburners  
Ceiling - Classified (80,000+ ft.)  
Fuel - JP-6



*the world's fastest plane...*

# SST

*...the world's fastest Atari*

Introducing the fastest, most compatible, most flexible accelerator available for the Atari Mega ST: the splendiferous totally cool **68030 SST**. With its screamingly fast 68030 microprocessor, up to 8 meg of fastRAM (to 12 meg total), asynchronous design, and special compatibility software by Dave Small, the SST is any "ST pilot's" dream...

...The dream can be **yours!** So bring your Mega ST into the 90's, and turn it into one of the fastest machines on the planet!

From the people who brought you Macintosh emulation on the Atari (and whose Dad actually flew the SR-71).

**SST prices start at \$599.00**

## 68030 SST

Speed - 18 to 40 MHz asynchronous design; up to 12 times faster than a Mega ST  
Engine - MC68030 Microprocessor with Caches and Burst Mode Afterburner  
Ceiling - up to 12 Megabytes of RAM  
Fuel - up to 8 Megabytes of 32 bit fastRAM in tandem with a 20 or 33 MHz oscillator  
Operating System - TOS 2.06 (Mega ST'), with the new Atari desktop  
Expansion - processor direct slot; Chromax Super Video board already "in rollout"  
User Upgradeable - when ever you want to

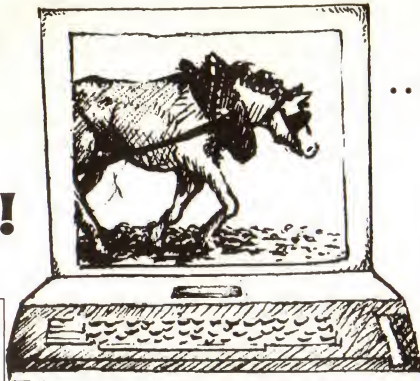


# Gadgets by Small SSTSSTSSTSST

40 W. Littleton Blvd.; #210-211 • Littleton, CO 80120 • (303) 791-6098 • Fax (303) 791-0253



# Make your 8-bit a Workhorse!



...with power products from  
**Computer Software  
Services**

Power Products for your  
XF551

Power products for your XL/XE computer

\$69.95

THE ULTRA SPEED PLUS OS

\$69.95

## \$99.95 THE XF SINGLE DRIVE UPGRADE \$99.95

Double the storage capacity of your XF551 with our 3.5" 720k single drive upgrade! Included with the upgrade is a Sony 3.5" disk drive in a 5.25" faceplate that perfectly replaces the existing 5.25" drive. The 3.5" drives are newer technology, more reliable, and easier to handle. Do NOT confuse this with public domain upgrades! The completely re-written drive OS adds these features:

- Fixes incompatibilities with commercial software
- Eliminates density reconfiguring problems
- Switches to second side without reconfiguring
- Ultra Speed I/O compatible
- Very high speed sector skew in US mode
- Capable of reading IBM and/or ST disks
- Compatible with 40 OR 80 track drives

Included with the upgrade is a utility program capable of reading IBM and/or ST disks, so you can import text or binary files to your 8-bit (text conversion routines are included). Minimal soldering is required; but we provide free installation for any of our products! Only \$99.95 plus \$8 S/H/I. If you already have a 3.5" drive, you may obtain the single drive upgrade without the Sony drive for \$59.95 plus \$5 S/H/I.

## \$139.95 THE XF DUAL DRIVE UPGRADE \$139.95

Our XF Dual drive upgrade allows you to add a 3.5" drive to your XF551, while keeping the 5.25" mechanism. This is a totally switchless upgrade that turns your XF into two disk drives! The added 3.5" drive assumes the next drive number higher than the 5.25" and is totally independent, so you can copy between drives, even mixing densities! This product has all of the features of the above single drive upgrade, available for both drives! Complete with Sony 3.5" drive, only \$139.95 plus \$8 S/H/I. The upgrade without the drive is \$79.95 plus \$5 S/H/I. A special version to handle dual 3.5" mechanisms is available for an additional \$20.

### THE FLOPPY BOARD \$109/149

The Floppy Board has arrived! This long-awaited Black Box add-on has been in the making for quite a while, but we've packed it with features that are worth the wait! This sophisticated device allows connection of up to four 5.25" or 3.5" floppy drives (drive sizes may be mixed). Access to these drives will be at parallel bus speed, approaching that of hard disks!

The board consists of 13 special integrated circuit chips, fully powered by the power supply of the Black Box. It has its own on-board microprocessor to take the load off the computer's processor for disk I/O. The board fits perfectly over the Black Box (inside the custom cases!). It is not a stand-alone device; it must be used in conjunction with the Black Box.

High density disks are supported, so 1.2 meg 5.25" and 1.44 meg 3.5" drives may be connected. This is the only 8-bit controller to fully support these drives and densities! With four 3.5" 1.44 meg drives connected, you can achieve more total storage than a 5 meg hard disk! Archiver compatibility is supported! This means you can back up those titles no longer available. Although it's not as powerful as our Super Archiver, it will have the same editing power, with good backup capability.

Software included with the Floppy Board includes a utility to READ and WRITE IBM and ST disk formats! This will yield the easiest possible way to port text and data files between your 8-bit and ST or PC! This will be compatible with most all of the current formats. Also included is a high-speed sector copier designed to make extremely fast, verified copies of disks. A future upgrade to the Hard Drive Pro Backup (our hard disk backup tool) will make special use of the floppy board, and squeeze even more data on each disk than standard formats allow. It is possible to actually store 1.6 megs of data on a 1.44 meg 3.5" drive, so backing up a full 20 meg hard disks might only take 14 disks! Usage of the Floppy Board's on-board processor will allow overlapping reading and writing, making the backup really fly.

Two versions are available: the basic unit, and the Deluxe version. The basic unit provides the interface necessary for low density drives (360k for 5.25" and 720K for 3.5"), and comes with the IBM/ST transfer utility. The Deluxe version adds the high density capability, adds Archiver compatibility, AND adds the features of the Black Box Enhancer, which include a high-resolution 16 grey scale printer screen dump, and a powerful built-in sector editor, disassembler, and copier (which accesses the full 16 megs possible of hard disk partitions, and uses all available extra memory). Note: the Floppy Board replaces the ROM on the Black Box, so current Black Box Enhancers cannot be used with the Floppy Board.

The basic unit is only \$109.95, and the deluxe unit is only \$149.95. Add \$5 for shipping/handling.

The Operating System that should be in every XL/XE computer! The **ULTRA SPEED PLUS** puts unbelievable speed and convenience at your fingertips. After using it a while, you'll wonder how you ever got along without it! Use ANY DOS to place **ULTRA HIGH SPEED** formats on your disks (with XF551 or modified 1050 drives), reconfigure and boot any drive (1-9 or even your **RAMDISK**!), sector copy single and double density disks to your **RAMDISK**, activate a built-in **400/800 OS** for compatibility, and much more! Below are a list of features. Only \$59.95 + \$5 S/H/I.

- **ULTRA SPEED SIO** for most modified drives
- **ULTRA SPEED** is toggleable
- Boot directly from **RAMDISK**
- Special timer circuits not required for 1 and 2 megs
- Background colors adjustable
- Reverse use of **OPTION** key
- Toggle internal **BASIC**
- Built-in drive number editor (including **RAMDISK** drive)
- Toggle screen off for up to 40% increase in speed

- **DOUBLE DENSITY RAMDISK** handlers
- **ENTIRE MEMORY TEST** that pinpoints defective RAM chips
- Boot any drive (1-9) on cold start
- Supports ALL XE-compatible memory upgrades up to **two megabytes**
- **THREE** Operating Systems in one (**XL/XE, 400/800, ULTRA SPEED PLUS**)
- **COLD-START** without memory loss
- Built-in mini sector copier
- **RAMDISK** exactly duplicates floppy drive so sector copying and editing are possible

## \$199.95 THE BLACK BOX \$199.95

The **BLACK BOX** is a parallel-port device for your XL or 130XE computer that adds tremendous power to your 8-bit Atari. It is a T-shaped board with two buttons, two switches, and a set of dip switches visible from the outside. The **BLACK BOX** performs three main tasks: interface to a SASI/SCSI bus (for interface to most common hard disks), a parallel printer port, and a RS232 (modem) port. You may partition your hard disk(s) into as many drives as you wish; up to 9 may be active at any given time. By pressing one of the buttons on the **BLACK BOX**, you will enter the configuration menu, where you can re-assign drive numbers, swap partitions in and out, etc. When you exit, you will be returned to your program - undisturbed! Each hard disk partition has its own write-protect flag, and may be set to single or double density. Every hard disk may be write-protected with the flip of a switch. As an option, you may use your computer's XE RAM as a printer buffer, or order the **BLACK BOX** with 64K of on-board RAM. Another amazing feature of the **BLACK BOX** is the built-in **screen dump**. By simply pressing a button, the contents of your screen will be dumped to your printer! (You can define text or graphics modes with a switch!) The RS232 port supplies the full spec signals for added compatibility. Its handler takes up no user memory, and can handle 19,200 BAUD! A **machine language monitor** has been added to allow memory disassembly, memory/register changes, and more. The basic **BLACK BOX** unit is \$199.95, and \$249.95 with 64K RAM (for printer spooler). S/H/I is \$8. An optional custom **BLACK BOX** case is available for \$39.95. The Black Box is a product of Computer Software Services... Not the Black Box Corporation.

## HARD DISK SYSTEMS

We offer complete, ready-to-run hard disk systems from 5 megs on up! These systems include a hard disk, Black Box, power supply, controller, cables, and software. Everything is pre-formatted and tested, so all you have to do is plug it in and boot! Prices start as low as \$399. Call for the latest prices and specials!

## INSTALLATION AND REPAIRS

Although installation of any of our products is easy, by taking advantage of our free installation offer, you can rest assured it will be done right. All you pay is the freight charges. For repair of Atari 8-bit computers and drives at reasonable rates, contact our repair department at (716) 429-5639. All work is guaranteed, and there are no minimum estimate fees.

### TWO FOR ONE DEAL!

If you have two or more of the same items needing repair and don't want to spend any money... send them to us and we'll use the parts from both defective items to make one good working unit at NO CHARGE - we'll keep the other defective one for parts! Please call before sending anything in.

We carry many other items - call for our FREE catalog!

Dealer/Distributor/User Group discounts available—call for info.

We accept VISA and Master Card. NY Residents please add sales tax.

Call Today! (716) 429-5639  
10AM-5PM (EST) Weekdays  
300-2400 Baud BBS: (716) 247-7157  
Fax Line: (716) 247-7158

Computer Software Services  
P.O. Box 17660  
Rochester, NY 14617

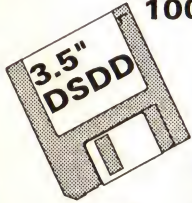


# DISKETTES

## GENERIC

## PREMIUM

100% GUARANTEED - ENVELOPES FREE - LABELS \$1.00 PER 100



**TOO LOW TO  
ADVERTISE!**  
CALL 1-800-221-6332

In bulk packs of 50  
Software overruns. . . CALL  
10 Pak/white box . . . CALL



**TOO LOW TO  
ADVERTISE!**  
CALL 1-800-221-6332

In bulk packs of 50  
10 Pak/white box . . . CALL



**33** ¢ ea.

In bulk packs of 50  
10 Pak/white box . . . \$3.90



**18** ¢ ea.

In bulk packs of 1000  
10 Pak/white box . . . \$2.30

**19** ¢ ea. **20** ¢ ea.

Bulk lots of 500 Bulk lots of 50  
10 Pak/white box . . . \$2.50



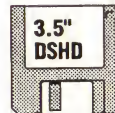
Please refer  
to color chart.

BULK LOTS  
OF 50 EACH

Blue Colors  
**54** ¢ ea. **64** ¢ ea.

FLEX BRAND  
10 PAK-BOXED

Blue Colors  
**59** ¢ ea. **75** ¢ ea.



Please refer  
to color chart.

BULK LOTS  
OF 50 EACH

Black Colors  
**87** ¢ ea. **1.02** ea.

FLEX BRAND  
10 PAK-BOXED

Black Colors  
**95** ¢ ea. **1.09** ea.



Please refer  
to color chart.

BULK LOTS  
OF 50 EACH

Black Colors  
**48** ¢ ea. **54** ¢ ea.

FLEX BRAND  
10 PAK-BOXED

Black Colors  
**54** ¢ ea. **64** ¢ ea.



Please refer  
to color chart.

BULK LOTS  
OF 50 EACH

Black Colors  
**30** ¢ ea. **38** ¢ ea.

FLEX BRAND  
10 PAK-BOXED

Black Colors  
**36** ¢ ea. **41** ¢ ea.

| DISKETTES | 3.5" CASES     |      | 5.25" Cases / Mailers |      |  |
|-----------|----------------|------|-----------------------|------|--|
|           | 100 cap w/lock | 9.00 | 120 cap w/lock        | 9.00 |  |
|           | 40 capacity    | 7.00 | 50 capacity           | 5.50 |  |
|           | 10 capacity    | 1.65 | 15 capacity           | 4.90 |  |
|           | 5 capacity     | 1.65 | 10 cap smoke          | 1.65 |  |
|           |                |      | 10 cap SRW            | 1.65 |  |
|           |                |      | 5 capacity            | 1.65 |  |
|           |                |      | 4 cap clamshell       | .40  |  |
|           |                |      | 4 cap mailer          | .40  |  |
|           |                |      | 2 cap mailer          | .40  |  |

## ODDS 'N ENDS

Software  
Duplication  
Fallout disks

3.5"DD - 22¢ ea.  
3.5"HD - 40¢ ea.  
5.25"DD - 13¢ ea.  
5.25"HD - 25¢ ea.

12 Piece  
PC Tool  
Kit  
Zippered  
Case

**\$7.95**

5.25"/10 Pak  
SRW Disk Case

Reg. \$1.65  
now **75¢ ea.**  
Beige Color

## PREMIUM COLOR CHART

|            | Royal Red | Green | Fog White | White | Grey | Yellow | Orange | Burgandy | Lt. Blue | Dk. Blue | Black |
|------------|-----------|-------|-----------|-------|------|--------|--------|----------|----------|----------|-------|
| 3.5" DSDD  | X         |       | X         |       | X    | X      | X      |          |          |          | X     |
| 3.5" DSHD  | X         | X     | X         | X     |      | X      | X      | X        |          |          |       |
| 5.25" DSDD | X         | X     | X         | X     |      | X      | X      | X        | X        | X        |       |
| 5.25" DSHD | X         | X     | X         | X     |      | X      | X      | X        | X        | X        | X     |

## NAME BRANDS

3M - DYSAN - VERBATIM - MAXELL  
SONY - BASF - NASHUA - SYNCOM

REQUEST OUR FLYER FOR PRICING

AI 06



**1-800-221-6332**

FAX 515-782-4166

INFO 515-782-5190

MIDWESTERN DISKETTE  
509 West Taylor • Creston, IA 50801

SALES TERMS: Visa or Mastercard are accepted. No surcharge or order charge is added. Orders paid by personal or company checks take 10 working days for shipping. Money orders or certified funds ship immediately. Net 10 day terms with credit card guarantee, COD cash add \$4.00. SHIPPING RATES: Continental USA: Diskettes \$3.00 per 100 or fraction. Ribbons: \$3.00 per dozen or fraction. APO, FPO, Alaska, Puerto Rico, Canada: Diskettes \$9.00 per 100 or fraction. Ribbons: \$9.00 per dozen or fraction. WARRANTY: MDDC honors warranty claims against defective products purchased from MDDC. Customer is responsible for shipping charges to return product. PRICES ARE SUBJECT TO CHANGE.